RCRA PART B PERMIT APPLICATION

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FERNALD CLOSURE PROJECT

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SECTION C - WASTE CHARACTERISTICS

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SECTION C - WASTE CHARACTERISTICS

C-1.0 INTRODUCTION

This section of the RCRA Part B Permit Application describes the Waste Characteristics of the Fernald Closure Project's (FCP) ~~FEMP's~~ wastes. This section has been prepared in accordance with the requirements of Ohio Administrative Code 3745-50-44 (A)(2) and (3) (40 CFR 270.14 (b)(2) and (3)) and meets the requirements for a Waste Determination Plan in Subsection 3.5.1(a) of the Stipulated Amendment to the Consent Decree (SACD).

C-1.1 ORGANIZATION

Section C is divided into five sections. Section C-1 provides an introduction to Section C, providing the section organization [this subsection], a site background discussion, and a regulatory compliance discussion. Section C-2 presents the Waste Determination Criteria. Section C-3 discusses the requirements for the receipt of hazardous waste generated from off-site. ~~, and Section C-3 provides the Waste Acceptance Criteria for laboratory wastes generated off-site and treatability study material.~~ Section C-4 discusses how waste characteristics affect the storage and management of wastes, while Section C-5 addresses how waste characteristics affect procedures to ship wastes off-site.

Section C-2 is ~~Sections C-2 and C-3 are each~~ divided into five subsections, as shown below.

- **Procedures** - Identify the operational procedures used to manage the identification of wastes;
- **Waste Analysis** - Identify the analyses needed to determine how to manage the waste;
- **Land Disposal Restrictions** - Identify the applicable Land Disposal Restrictions, and any associated regulatory requirements;
- **Quality Assurance / Quality Control Criteria** - What Quality Assurance and Quality Control techniques are used; and

- **Records** - What records are required and where they will be maintained.

C-1.2 SITE BACKGROUND

The Fernald Closure ~~Environmental Management~~ Project (FCP) ~~(FEMP)~~, previously the Feed Materials Production Center, produced uranium metal used in the fabrication of fuel cores and target fuel elements for the U.S. Department of Energy (DOE). The FCP ~~FEMP~~ ceased production in 1989. The FCP's ~~FEMP's~~ primary function was changed in August 1990 from uranium metal production to environmental restoration and site clean-up activities.

C-1.3 REGULATORY COMPLIANCE

The FCP ~~FEMP~~ currently stores wastes generated from former on-site production processes, restoration activities, ongoing site maintenance and construction, and material received during the production years from off-site DOE facilities. Most hazardous waste stored at the FCP ~~FEMP~~ is mixed waste. Mixed waste is defined as waste that contains both a hazardous waste component regulated under RCRA and a radioactive component consisting of source, special nuclear, or byproduct material regulated under the Atomic Energy Act. Any information included in this section on the radioactive portion of mixed wastes generated or stored at the FCP ~~FEMP~~ is included for information purposes only, and is not intended to be part of the FCP's ~~FEMP's~~ RCRA Part B Permit Application. Because there are limited treatment/disposal facilities permitted for mixed wastes, the FCP ~~FEMP~~ is required to store the mixed waste on-site until treatment/disposal capacity is developed in accordance with plans and schedules established in the FCP's ~~FEMP's~~ Federal Facility Compliance Act (FFCAct) Site Treatment Plan.

The FCP ~~FEMP~~ is operating under several legal agreements including a Consent Decree and its Stipulated Amendment. Under this legal agreement, the parties agreed to a schedule for RCRA characterization of waste materials stored on site. ~~Consent Decree schedules for completing waste characterizations are provided in Attachment C-2.~~ RCRA characterizations were based on process and material knowledge of off-site

material by researching historical material records and movement markings relating to material received during the production years. Additional testing has taken place when warranted. See Waste Determination, Section 2.0 for a discussion on the determination of hazardous wastes.

C-2.0 WASTE DETERMINATION

Hazardous wastes or mixed wastes currently generated at the FCP ~~FEMP~~ result from activities such as CERCLA response actions, construction and maintenance, and miscellaneous activities. The FCP ~~FEMP~~ uses process knowledge and/or analytical data to characterize waste as described in this section. The purpose of this section is to identify the information needed during the process of waste determination, and to describe the process of waste determination.

Note: Wastes generated from CERCLA remedial actions will be characterized in accordance with each Record of Decision (ROD) for each CERCLA Operable Unit (OU). The characterization of bulk soil and debris generated from CERCLA remedial activities is tracked using profiles while the Waste Water Discharge Request Form is used to evaluate waste waters generated from CERCLA remedial actions for discharge into the FCP's ~~FEMP's~~ Advanced Waste Water Treatment Facility. The process for completing the characterization of these wastes is not discussed in Section C which only addresses the characterization of containerized wastes. The use of profiles and other documents to characterize bulk remediation waste and wastewaters generated from CERCLA activities is discussed in documents developed for each of the Operable Units as part of the CERCLA remedial process.

Waste Characterization personnel develop, interpret, and implement all RCRA hazardous waste characterizations in accordance with OAC 3745-52-11 and all other applicable 40 CFR 262.11 regulatory requirements. The Waste Characterization Manager oversees the development of an integrated strategy for all RCRA and CERCLA containerized hazardous waste characterizations at the facility. Waste Characterization personnel are responsible for waste characterizations utilizing process knowledge and/or sampling and analysis to determine valid hazardous waste characteristics and listings as noted on Material Evaluation Forms. Waste

generated from construction projects, maintenance projects, CERCLA response actions, newly identified waste materials, and laboratory programs are characterized by these personnel.

In accordance with OAC 3745-52-11 and 40 CFR 262.11, the FCP ~~FEMP~~ as a generator of solid waste will determine if that waste is a hazardous waste. This evaluation will be made prior to any commingling or combining with other waste. The FCP ~~FEMP~~ will not commingle waste streams for purposes of this evaluation.

The FCP ~~FEMP~~ will then determine if the solid waste is excluded from regulation. If the waste is not excluded, the FCP ~~FEMP~~, when appropriate, will then determine if the waste is listed as a hazardous waste as indicated in OAC 3745-51-30 and 40 CFR Part 261 Subpart D or is mixed with a listed hazardous waste.

If the waste is not a listed hazardous waste, the FCP ~~FEMP~~ will determine if the waste is a characteristic hazardous waste as indicated in OAC 3745-51-20 through 24 and 40 CFR Part 261 Subpart C. This determination will be made by either (1) testing the waste according to methods (or equivalent approved methods) set forth in OAC 3745-51 and 40 CFR Part 261 Subpart C; or (2) obtaining data necessary to determine whether the waste is hazardous. The data may be obtained from site literature, from experience with the waste, from other sources, or a combination of sources.

Adequate data for waste determination to evaluate for listing considerations exists when materials in a process can be tracked and documented from the start of the process to the point when the waste is generated. If information is not sufficient to identify the specific origin of the waste, the process information will be considered incomplete. Sources for documentation at the FCP ~~FEMP~~ include standard-operating-procedures (SOPs), manifests, shipping records, manufacturing specifications, piping and/or materials flow diagrams, minor event reports, miscellaneous operation reports, and other available technical or analytical reports. When no information exists or can be reconstructed on the origin of a process or waste stream, the waste may be assumed not to be a listed RCRA waste (55 FR 8758-8763;

March 8, 1990 and 53 FR 51445; December 21, 1988). Therefore, when historical data is incomplete or unavailable, the waste is evaluated for hazardous characteristics only.

C-2.1 PROCEDURES

Material Evaluation Form

A diagram of the material evaluation process is provided in Figure C-1. The first step of the waste determination process is completion of the Material Evaluation Form (MEF), the vehicle for documenting waste characterizations. The Requestor Section of the MEF is filled out by the process operator/project supervisor who is responsible for the waste generation. An example of the Material Evaluation Form is provided in Figure C-2. This form is included as an example of the type of form used by the facility and is subject to change, based on changes in regulatory requirements or site procedures/requirements.

Once completed, the Requestor Section of the MEF is reviewed by FCP ~~FEMP~~ Waste Characterization personnel. FCP ~~FEMP~~ specialists evaluate the adequacy of process knowledge and, if sufficient and conclusive, use this information to characterize the waste. Waste determinations based on process knowledge also rely on supplemental information/documentation. This information can include but is not limited to:

- Historical knowledge and/or data on similar FCP ~~FEMP~~ processes and wastes;
- Conversations with personnel familiar with the process or location;
- Text books which describe the processes;
- Material Safety Data Sheets; and
- Vendor Specification information.

Documentation of process knowledge, and supporting documentation is maintained in the waste characterization files. Additional actions such as a visual inspection, a request for additional process information, and/or a request for sampling and analysis of the waste are taken when process knowledge is inadequate to complete a

characterization. Data from portable field equipment (such as high purity geranium (HPGe) detectors, pH meters, and photo-ionization detectors (PID)) may also be used to support existing process knowledge. After adequate information is gathered for the waste, results are evaluated, the Evaluation Section of the MEF is completed and RCRA waste codes assigned as warranted.

If the waste requires sampling and analysis, the parameters needed to assess the hazardous waste constituents of the waste are identified and a sampling plan is prepared. Preliminary information supplied on the Material Evaluation Form is used to develop the sampling plan. The sampling and analysis program is initiated by Waste Characterization personnel responsible for making the determination. Analytical results are also used for LDR documentation.

The sampling plans include but are not limited to the following information:

- the purpose of sampling;
- the identification of sampling procedures;
- number and location of samples;
- analytical parameters;
- sample volumes and containers;
- Quality Assurance/Quality Control requirements;
- equipment needed;
- decontamination of equipment; and
- health and safety concerns.

After the samples are analyzed and results are received by the FCP ~~FEMP~~, the results are reviewed by ~~the~~ Waste Characterization personnel. A determination is then made based on the statistical analysis of the results and available process knowledge. Table C-5 provides examples, when available, of analytical results or technical literature which has been utilized in addition to process knowledge to make a waste

determination for a particular waste category. A description of each waste category is located in Table C-3.

Debris

Prior to initiating work activities, an assessment is conducted to determine whether debris generated from a project can be characterized under an existing MEF or a new MEF has to be developed. Whenever possible, existing analytical information (Remedial Investigation characterization results, RCRA waste determination, and environmental monitoring results), historical facility information, and/or process knowledge will be utilized to complete the assessment. Physical sampling and analysis will be performed when information is not available to complete this assessment. If the waste is determined to be hazardous, the waste will be stored in one of the RCRA storage units.

Compatibility

Compatibility of the hazardous waste with the container is verified prior to placing a hazardous waste in a container. The verification is completed by comparing analytical data or process knowledge for the hazardous waste to compatibility information for the container. After compatibility verification is completed, the appropriate container is obtained.

Chemical constituency or compatibility of each hazardous waste is evaluated to ensure that the hazardous wastes stored in a unit are compatible with each other and with the construction of the unit. A Reactivity Group Code is assigned to each hazardous waste stream to ensure that incompatible hazardous wastes are not stored together. The generator of the hazardous waste is responsible for ensuring that the Reactivity Group Code (RGC) has been stenciled on the container. The current Reactivity Group Codes in use at the FCP are ~~FEMP is~~ included as Figure C-4. These Reactivity Group Codes will be modified as additional hazardous wastes are identified at the FCP ~~FEMP~~.

Waste Determination

Following completion of the MEF, a waste determination is made. Table C-4 presents information on the current inventory of hazardous waste. ~~determinations made to date.~~ The table shows the FCP ~~FEMP~~ waste identification numbers, along with the waste name, the waste code(s), the DOE waste category description and the basis of determination (e.g., process knowledge or analysis). Specific analyses used to make the determinations are coded to information at the bottom of the table.

Table C-5 presents Example Analytical Results for various waste streams at the FCP ~~FEMP~~. A description for each DOE waste category and subcategory may be found in Table C-3. ~~Analytical test methods which will be used for fingerprint acceptance/rejection, when necessary, is listed for each major category and may be found in Table C-3.~~

Container Labeling

The FCP ~~FEMP~~ has developed and implemented procedures to label hazardous waste containers. At a minimum, the container labels identify the material as "Hazardous Waste", the facility name and address, the EPA Identification Number, the contents of the container and the dates on which accumulation or storage of the hazardous waste began. Reactivity Group Codes are also applied to containers for safe storage. Container management activities are described in greater detail in Section D, Process Information.

C-2.2 ANALYSIS

This section presents the Waste Analysis Plan, including the parameters and rationale for parameter selection that apply to any individual waste stream generated ~~or received~~ by the FCP ~~FEMP~~. Waste streams generated by the FCP ~~FEMP~~ may contain several constituents of concern. Waste is analyzed for specific parameters, as necessary, in order to meet the objectives of the Waste Analysis Plan.

The Waste Analysis Plan describes the procedures used at the FCP ~~FEMP~~ to manage waste; the plan has four objectives:

- Provide an overview to identifying the hazardous physical and chemical properties of each waste stream and facilitate assigning appropriate hazardous waste codes;
- To provide sufficient information to select the safest hazardous waste storage containers, appropriate hazardous waste storage areas, and establish appropriate shipping and handling techniques;
- To determine applicable land disposal restriction information for each hazardous waste stream; and
- To determine the appropriate treatment method for the material based on relevant information and current availability of mixed waste treatment capacity.

The Waste Analysis Plan may also be used to provide information for the initial screening of hazardous wastes for treatment as treatment facilities become available. As much relevant information as possible is obtained in the absence of clear understanding of how some waste material will be treated based on the current limits of mixed waste treatment capacity.

Each waste stream is reviewed for those parameters most likely to yield the maximum amount of chemical and physical information. In addition, specific analyses are selected based on historical knowledge, knowledge of the waste generation process, and the constituents suspected to be in the waste. The waste parameters selected by the FCP ~~FEMP~~ represent those characteristics and constituents necessary to manage the waste in compliance with applicable permit conditions.

Test Methods

When process knowledge is insufficient to characterize a waste stream, analytical methods are used to supplement the existing process knowledge. The test methods employed for the analytical parameters chosen to characterize and monitor the FCP

~~FEMP~~ waste streams are listed in Section 7.2 of the Prototype Sampling and Analysis Plan for Waste at the FCP ~~FEMP~~ (PL-3048). This plan is provided as Attachment C-7. When a waste stream has the potential to have several waste codes, the appropriate analytical tests are conducted on the sample.

Atomic absorption, direct aspiration or ICP techniques are the methods of choice for metallic analytes. However, where analytical or sample matrix interferences prevent the collection of accurate and/or precise data, the atomic absorption, furnace technique analogs are employed. An alternative gas chromatographic/mass spectroscopic method (SW-846 Method 8240) is substituted for the gas chromatography methods for the analysis of volatile organics if the methods listed do not provide definitive results for waste characterization or recertification.

For those constituent analyses not addressed in test methods presented in the SCQ, American Society of Testing Materials (ASTM) Standards has been adopted as appropriate. The USEPA's SW-846 and "Standard Methods for the Examination of Water and Wastewater," latest edition, prepared and published jointly by American Public Health Association, American Water Works Association, and the Water Environment Federation, may also be used.

The methods specified in the SCQ are also required for samples sent to off-site laboratories for analysis. Methods used to analyze wastes sent to off-site laboratories are specified in the FCP's ~~FEMP's~~ contract with the laboratory. Laboratory reports document the specific SCQ method or its analog used to analyze for each constituent. The laboratory of choice may vary because the FCP ~~FEMP~~ must maintain the flexibility to select contract laboratories on a competitive basis.

Toxic Characteristic Leaching Procedure (TCLP) Analysis

Normally, RCRA metals and organics will be measured using the TCLP method to complete the RCRA waste characterization relative to the Toxicity Characteristic (TC). However, in certain cases, total metals/organics may be used in lieu of the TCLP.

These cases and justifications are outlined below:

- **Process Knowledge** - When particular constituents are not suspected in the waste under evaluation, totals analyses may be used to confirm that individual constituents are not present in the waste at levels that could cause the waste to fail the TCLP. The FCP ~~FEMP~~ uses a 20:1 ratio of Total concentration results for solid matrix samples to TCLP regulatory threshold limits to determine if TCLP analysis are required. If the analyte-specific upper limit of the 90% confidence interval exceeds the 20:1 ratio with its associated TCLP regulatory value, the waste will be evaluated if deemed necessary under TCLP. This ratio is for materials which are 100% solid wastes that contain no filterable liquids. In other situations, the Maximum Theoretical Leachate Concentration (MTLC) is evaluated using the following formula:

$$MTLC = \frac{(A \times B) + (C \times D)}{B + (20\ \text{Liter/kg} \times D)}$$

where,

A = the concentration of the analyte in the liquid portion of the sample (in milligrams per liter)

B = the volume of the liquid portion of the sample in liters

C = the concentration of the analyte in the solid portion of the sample (in milligrams per kilogram)

D = the weight of the solid portion of the sample in kilograms.

If the value calculated using the MTLC equation is below the regulatory concentration for a particular toxic constituent, the TCLP need not be performed, and the waste would not exhibit the toxicity characteristic. This is consistent with USEPA SW-846 Method 1311, item 1.2 and the flowchart diagram noted in SW-846 Vol. I.A page TWO-47. The source of the MTLC

equation is an internal Quality Assurance memorandum of the U.S. Environmental Protection Agency dated Jan. 13, 1993.

- **Oil and oily wastes** - The TCLP has been demonstrated not to perform well on oily wastes; reproducibility of results has been shown to vary widely. Until USEPA promulgates new standards, FCP ~~FEMP~~ will use totals analyses for these wastes to make compliance decisions regarding the TC.

- **Aqueous wastes** - When there are less than 0.5% filterable solids, the TCLP simplifies to a total analysis, as described in the method.

Additional Requirements for Ignitable, Reactive and Incompatible Wastes

Liquid ignitable hazardous wastes are identified through process knowledge or by use of the Pensky-Martens Closed Cup test (USEPA Method Number 1010) to determine the flashpoint of the waste.

A small quantity of reactive hazardous wastes have been generated and stored at the FCP ~~FEMP~~. Reactive hazardous wastes are stored in areas that are compatible with the material stored and are separated from incompatible hazardous wastes. Each hazardous waste stream is assigned a Reactivity Group Code based on the process knowledge and/or analytical data for each waste stream on the Material Evaluation Form. Only compatible hazardous wastes are stored within each storage unit or containment system.

~~The only exception to this requirement is containers of samples being staged in the Pilot Plant Warehouse (Building 68) prior to segregation under the Sample Disposition Project. RGC Codes will be applied to containers of hazardous waste samples after they have been segregated and/or consolidated under this project. These are primarily environmental media samples and samples from various mixed waste treatment projects. The Pilot Plant Warehouse is being used to temporarily store these containers since many of the samples are stored in glass jars and require storage in a heated~~

~~building. The samples have been overpacked into larger containers filled with packing material and/or absorbent.~~

Sampling Methods

The FCP ~~FEMP~~ has prepared a prototype containerized waste sampling and analysis plan (Attachment C-7) for sampling waste materials for characterization which are stored in containers such as cans, pails, drums, metal boxes, and Sea/Land or top load containers. The plan is updated on a regular basis to resolve reoccurring sampling problems, regulatory changes, and changes in the supporting documents. The prototype plan incorporates the sampling methods in the SCQ, Methods for Evaluating the Attainment of Cleanup Standards, Vol. I, Soils and Solid Media (EPA/230-02-89-042), Characterizing Heterogeneous Wastes: Methods and Recommendations (EPA/600/R-92/033), and Test Methods for Evaluating Solid Wastes, Volume II, Field Manual, Physical/Chemical Methods (SW-846). All work will be conducted in accordance with the FCP ~~FEMP~~ SCQ which is designed to meet the data quality objectives associated with FCP ~~FEMP~~ activities. Data generated under the SCQ is intended to fulfill defined needs of DOE, EPA, the Ohio Environmental Protection Agency, and the public.

Due to the fact that wastes generated at the FCP ~~FEMP~~ vary in types of matrices, the sampling methods and equipment used by the facility depend on the individual waste stream matrix. The selection of the appropriate sampling equipment is determined in accordance with Section 6 and Appendix K of the SCQ.

Representativeness, or the collection of samples that are unbiased and exhibit average properties of the population sampled, is achieved by segregating the containerized wastes into sub-waste streams. A sub-waste stream is comprised of a sample group of similar material matrix and physical properties.

Sampling accuracy, or the closeness of a sample value to its true value, is achieved through randomized sampling of the waste containers within a given sub-waste stream.

Randomized sampling minimizes bias in the sample selection process by giving each container an equal probability of being sampled.

Sampling precision, or the closeness of repeated sample values, is achieved by increasing the number of samples to be collected, increasing the actual volume of the samples, or dividing a population into appropriate strata prior to sampling. Additional samples may be collected when the uniformity of the waste is not known and when sample collection is difficult. The volume of sample material collected at the FCP ~~FEMP~~ usually exceeds the minimum amount needed for analytical sample preparation and analysis to facilitate additional analyses for documentation of precision. Lastly, when a sub-waste stream is suspected or known to contain separate physical phases (i.e., solids and liquids), the number of samples required is calculated for each waste phase. During sample collection activities, a sample is collected from each waste phase from the randomly selected waste containers.

The sampling approach for containerized wastes at the FCP ~~FEMP~~ is dependent on the characteristics of the sub-waste stream as determined by process knowledge, previous analytical data, and/or visual inspection reviews. Simple random sampling methods are used for sub-waste streams which contain a single-phased (i.e., either solid or liquid) and relatively homogenous waste material. Stratified random sampling methods are used for sub-waste streams that have been segregated into multiple container groups (lots) based upon differences in: the physical characteristics (i.e., phase and degree of homogeneity) of the waste materials, the origin (time and location) of waste materials and their generation process, or the distribution and concentration of contaminants.

Methods of determining simple random sample locations include using a random number generator or random number lists. Computer generation of random numbers is preferred, since it eliminates the potential for error in reading a random number list and reduces bias in the selection of the origin point for a random number list. Stratified random sample locations will be determined by selecting random sample locations as previously described for each container group or lot.

All samples will be placed in containers and labeled with the following information: generator name, manifest number (if applicable), waste stream/sample number and date sample was taken.

Number of Samples

Sampling procedures used for waste characterization at the FCP ~~FEMP~~ are designed to ensure representative and random sampling. Sampling plans at the FCP ~~FEMP~~ are prepared following the Prototype Sampling and Analysis Plan for Waste at the FCP ~~FEMP~~ (SAP) (PL-3048) (Attachment C-7). The plan is updated on a regular basis to resolve reoccurring sampling problems, regulatory changes, and changes in the supporting documents. The primary objective of the SAP is to generate data of sufficient quality to identify the regulatory status of, and safely manage, containerized waste materials. To satisfy SCQ completeness requirements of 90%, the number of samples required to be collected will be calculated in accordance with methods described in EPA/230-02-89-042, Feb. 1989 Methods for Evaluating the Attainment of Cleanup Standards, Vol. I, Soils and Solid Media. The following equation will be used to determine the number of samples to obtain a 90% completeness level:

$$\#\ \text{of Samples}_{(90\%\ \text{comp})} = \frac{\text{Minimum number of samples required as determined by SW-846 methods}}{(1 - R)}$$

where,

R = 0.20 (20%), the expected percent of missing or unusable data (i.e., sample holding times exceeded, improper preservation of samples, sample container breakage during shipment to laboratory, etc.); An R-value of 0.20 (20%) was selected to take the most conservative approach for minimization or elimination of the potential need for re-sampling.

For drummed waste sampling at the FCP ~~FEMP~~, the number of samples required equals 10% of the number of drums in a sub-waste stream. However, for sub-waste streams containing more than 100 drums, collecting samples for analysis at a rate of 10% may not be economically feasible or practical. Therefore, the FCP ~~FEMP~~ intends to use the 10% method for sub-waste streams with <100 drums and the cube root method for sub-waste streams with >100 drums.

Using this approach, the number of samples required for waste characterization is as follows:

Number of Drums	Min. # of Samples for Analysis	Number of Samples for Completeness*
1 to 20	2	3
21 to 100	10%	12.5%
101 to 1000	10	13
1001 to 10,000	22	28

* Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%).

For metal boxes, Sea/Land, or Top Load container sampling, the proposed number of samples required shall be as follows:

Number of Boxes	Min. # of Boxes to be Sampled	Number of Samples for Completeness*
1	1	3
2 to 100	10% + 1	12.5% + 1.25
101 to 1000	11	14
1,001 to 10,000	23	29

* Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%). This number includes collecting one random sample from each metal box, Seal/Land, or Top Load container sampled.

For sub-waste streams that have been characterized by process knowledge and confirmatory testing is prescribed, the number of confirmatory samples per sub-waste stream is as follows:

Number of Containers	Min. # of Samples for Analysis	Number of Samples for Completeness*
1 to 10	2	3
11 to 100	3	4
101 to 1000	4	5

* Total number of samples required to maintain 90% completeness using a conservative R-value of 0.20 (20%). If the containers are metal, Sea/Land, or Top Load boxes, the required number of samples in this table is equal to the number of samples in this table plus one additional sample.

Parametric analysis, or EPA SW-846 Equation 8, is the preferred method to select the required number of samples required to satisfy the 90% confidence level requirement. However, EPA SW-846 Equation 8 requires previous analytical data to determine the mean associated standard deviation for the analyte with the most restrictive regulatory threshold level. EPA SW-846 Equation 8 may be used as tertiary method, in situations where the upper limit of a 90% confidence level approximates or exceeds the regulatory threshold value for a given analyte, to determine if additional sample collection and analysis is warranted. In situations where sufficient previous analytical data exists for a sub-waste stream, EPA SW-846 Equation 8 may be used in lieu of the sample frequency identified above.

Composite samples are also used for large populations (more than 20 drums) of containers with capacities of 55 gallons or less. Samples are collected from randomly selected containers and then composited. Sample compositing does not occur when there are physical anomalies between the wastes such as changes in color or the container holds co-mingled waste such as demolition debris. Composite sampling only occurs when evaluating materials from the same wastestream.

The majority of waste generating activities at the FCP ~~FEMP~~ has changed from continuous process sources to project and/or location-specific sources. Wastes generated by unique activities, such as closure/remedial wastes, are sampled as they are generated if there is not sufficient available information (e.g. RI/FS sampling) to complete the characterization. There are a few wastestreams managed in Satellite Accumulation Areas. Controls are in place to ensure that only one specific waste stream, as characterized by its MEF, is accumulated in each SAA. An additional verification is completed when the SAA container has been filled to ensure that the waste meets the criteria for characterization under its associated MEF. ~~Wastes that are generated by continuous processes are evaluated annually, unless there is reason to believe that the waste has changed.~~ If there is reason to believe the waste has changed, the waste is immediately re-evaluated.

For process wastes that are no longer generated, repeat analysis is not required for proper waste management. Because these wastes are stable and will not change, these wastes are not re-analyzed once they are characterized.

C-2.3 LAND DISPOSAL RESTRICTIONS

The FCP ~~FEMP~~ is required to determine whether its hazardous waste is restricted from land disposal and to properly manage the mixed waste in accordance with the Federal Facility Compliance Act (FFCAct). Section C-2.3 has been prepared in accordance with the requirements of OAC 3745-270 (40 CFR Part 268). Figure C-5 is an example of the type of form used to document the information used to complete the LDR waste characterization.

USEPA has recognized that sufficient treatment capacity for mixed waste is not currently available, but believes that technologies may become available in the future. The FFCAct has provided relief to the U.S. DOE from the requirements of 40 CFR 268.50, which specifies that hazardous wastes will not be stored more than one year. The USEPA has interpreted the LDRs to apply prospectively to affected waste placed in storage after the effective date as of an applicable land disposal restriction (51 FR 26597; June 23, 1989).

Waste Characterization

As described in Section C-2.1, hazardous wastes are assessed to determine the applicability of all possible hazardous waste codes including both listed and characteristic codes and to determine the appropriate LDR treatment requirements. Each hazardous waste code is evaluated for possible subcategories under 3745-270 and 40 CFR 268. Underlying hazardous constituents are identified where required by OAC 3745-270-40 and 40 CFR 268.40. The FCP ~~FEMP~~ also determines whether the hazardous waste meets applicable treatment standards for each hazardous waste code identified.

Process knowledge may be used to determine the hazardous waste's LDR subcategory such as D001, high Total Organic Carbon, and treatability group (wastewater or non-wastewater). In addition, process knowledge may be used to determine whether hazardous wastes meet treatment standards for chemical constituents that are not suspected of being present in the waste (57 FR 37204; August 16, 1992) and to identify the underlying hazardous constituents reasonably expected to be present in wastestreams subject to LDR Universal Treatment Standards in OAC 3745-270-48 (40 CFR 268.48).

When process knowledge is not adequate to determine a hazardous waste's subcategory, treatability group and the underlying hazardous constituents (where applicable), the hazardous waste is analyzed according to the procedures and analytical methods discussed in Section C-2.2. In addition, restricted hazardous wastes may require analysis to confirm that they meet concentration- based treatment standards for certification purposes.

Waste Characteristics: Solvent Wastes

Hazardous wastes containing spent solvents may meet treatment standards in some instances. In these cases, the FCP ~~FEMP~~ uses existing analytical data and process knowledge, or conducts additional analyses to certify compliance with the treatment standards.

USEPA has revised treatment standards for both non-wastewater and wastewater forms of F001-F005 waste involving conversion from TCLP standards to standards based on total concentrations. When analyses are required, spent solvent waste is analyzed to determine if the hazardous waste meets concentration based treatment standards by the total concentrations for F001-F005 waste. The revision does not include nonwastewater forms of carbon disulfide, cyclohexanone, or methanol (57 FR 37204; August 16, 1992).

Upon receipt of the analytical results, the FCP ~~FEMP~~ compares the results to the treatment standards in 3745-270 (40 CFR 268.40). If the results show that the treatment standards have been met, the FCP ~~FEMP~~ certifies that the hazardous waste meets treatment standards.

C-2.4 QUALITY ASSURANCE/QUALITY CONTROL

The quality assurance and quality control provisions for the waste determination shall be in compliance with applicable provisions of the latest edition of the Sitewide CERCLA Quality Assurance Project Plan. Additionally, the Quality Assurance Program Description shall be applicable.

Laboratory analysis will be in accordance with the SCQ, including applicable quality assurance and quality control provisions. Prior to the selection of a contract laboratory, the laboratory submits Quality Assurance and Quality Control (QA/QC) information to the FCP ~~FEMP~~. The laboratory is required to meet the QA/QC goals established in SCQ for analytical procedures. Failure to demonstrate the ability to achieve the QA/QC goals disqualifies the use of that laboratory.

Laboratory QA/QC

Laboratory QA/QC will be in accordance with Table G-2 in the SCQ. Method blanks are performed for each batch of samples, and matrix spikes/duplicates are performed every 20 samples unless noted otherwise in the table. For waste characterization and confirmatory testing, Analytical Laboratory Support Level B (ASL-B) as described in Section 11 of the SCQ will be utilized. Laboratory QA/QC also involves the review of chain-of-custody documents, field logs, and shipping seals to ensure sample integrity as well as compliance with sample holding times. The quality control samples will include, but will not be limited to method blanks, instrument calibration, spikes (sample, matrix, and matrix spike duplicates), interference checks (metals), and blind control samples. The laboratory shall maintain the quality control charts. This information may be requested in evaluating overall system performance relative to a specific analyses.

Sampling QA/QC

Quality control and assurance blanks, such as duplicates, equipment blanks, and/or trip blanks, will be collected. Duplicate samples are collected for waste streams with more than one drum at the rate of at least 10 percent of samples taken. For example, one duplicate sample is collected if three drums of waste are sampled; two duplicate samples are collected if 11 drums of waste are sampled. Equipment blanks are collected immediately following equipment decontamination. Trip blanks accompany sample shipments every third week. Trip blanks are analyzed for volatile organics each time they are submitted. Other samples may be collected as specified by the contract laboratory QA/QC procedures. These samples may include laboratory blanks and spiked blanks, split samples, and standards.

In addition to the quality control samples described above, the FCP ~~FEMP~~ uses several established procedures to preserve the integrity of the samples during collection and shipment. These procedures include:

- sampling plans,
- field logs,
- sample preservation,
- sampling equipment decontamination,
- chain-of-custody documents, and
- shipping seals.

Field Log

A field log is maintained by sampling personnel. The type of information that is recorded in the field log includes, but is not limited to:

- sampling date and location;
- time of sampling;
- sampling plan number, if applicable;
- material type and source code, if available;

- sampling personnel;
- lot and drum number, if available;
- sampling equipment used (if other than specified in the sampling plan);
- number of phases or matrix;
- phase specific identifying number, if applicable;
- physical description;
- sampling anomalies and resolutions to sampling problems;
- customer number for laboratory use;
- requested analysis;
- quantity and type of bottles;
- preservation techniques (i.e., cool with ice, pH adjustment, etc.);
- type of sample (i.e., grab, composite, etc.); and
- identification of containers storing decontamination rinseate and personnel protective clothing.

The field log describes sampling conditions that might prejudice the analytical results.

Sample Containers

The sample containers selected for a particular waste stream are based on the sample matrix and the types of analysis that may be required for that particular waste stream. Where various sample matrices are encountered or more than one analysis is required, the appropriate sample containers are used. The types of containers, preservatives, holding times, and minimum volumes required are presented in Table 7.1 of the Prototype Sampling and Analysis Plan for Waste at the FCP ~~FEMP~~ (PL-3048). This plan is provided as Attachment C-7.

~~**Frequency of Analysis**~~

~~The majority of waste generating activities at the FEMP has changed from continuous process sources to project and/or location specific sources. Wastes generated by unique activities, such as closure/remedial wastes, are sampled and analyzed as necessary as they are generated. Wastes that are generated by continuous processes~~

~~are evaluated annually, unless there is reason to believe that the waste has changed. If there is reason to believe the waste has changed, the waste is immediately re-evaluated.~~

Equipment Decontamination

All sampling equipment is decontaminated prior to sampling. The frequency of decontamination is based on the type of sampling. For those waste streams undergoing composite sampling, equipment is not decontaminated between individually collected samples making the composite. For waste undergoing grab sampling, equipment is decontaminated after each collected sample. In every case, equipment is decontaminated between different waste streams. Periodically, an equipment blank is collected after the equipment undergoes final decontamination to ensure that the equipment is decontaminated.

The general equipment decontamination procedure is described below:

1) The sampling equipment is placed over a collection drum and washed using a warm detergent solution and bottle brush.
2) The sampling equipment is rinsed several times with tap water to remove detergent residues.
3) The sampling equipment is then rinsed with distilled water and the excess water is drained into the drum.
4) The sampling equipment is then air dried or rinsed with isopropanol and allowed to dry.
5) The clean sampling equipment is placed in a plastic bag or wrapped in aluminum foil.

Chain-of-Custody and Shipping Seals

Sample containers are placed in appropriate shipping containers after sample collection. The containers are cooled, as required, to meet preservative requirements. Sample transport documentation such as analytical requests and chain-of-custody forms (See Figure C-7) are affixed to or placed in the shipping container. The FCP ~~FEMP~~ maintains a strict chain-of-custody procedure for all samples collected for RCRA determination. A chain-of-custody tape or other tamper guard seals are affixed to the shipping container in order to indicate potential container tampering. The shipping container is then sent to the appropriate laboratory for analysis.

Laboratory Audits

A detailed description of laboratory audit procedures for off-site laboratories is found in Section 12.0 of the SCQ. As described in the SCQ, ". . . audits shall consist of evaluation of the QA program and procedures, effectiveness of their implementation, and review of associated project documentation. ... Auditing shall be performed in accordance with DOE Guidelines [and] the SCQ . . ." As a minimum, surveillance shall consist of monitoring/observing ongoing project activity and work areas to verify item and activity conformance to specified requirements. Surveillance shall be scheduled, planned, and documented.

"Potential subcontractor laboratories shall be audited by the designated FCP ~~FEMP~~ QA organization (Section 3 and Appendix E [of the SCQ]). Contracted laboratories shall be audited annually at a minimum and will only perform services for FCP ~~FEMP~~ in the areas audited at the facility. Before a laboratory handles samples from FCP ~~FEMP~~, audit team documentation is required specifying that performance in areas related to analysis of FCP ~~FEMP~~ samples is within pre-established specifications."

~~The on-site laboratory facility at the FEMP is also subject to periodic inspections and audits in accordance with Section 12 of the SCQ.~~

C-2.5 RECORDS

This section discusses records that are maintained in conjunction with this process. In addition to the records discussed here, several other records have been described earlier in the text.

The MEF and any corresponding hazardous waste manifests are maintained at FCP ~~FEMP~~ as part of the RCRA Operating Record.

Prior to shipment of any hazardous waste from the FCP ~~FEMP~~ to an off-site facility, the FCP ~~FEMP~~ completes a notification/certification form in accordance with the requirements for generators in OAC 3745-270-07 (40 CFR 268.7) as discussed in Section C-2.3.

The completed notification/certification form will be maintained on-site in accordance with OAC 3745-54-73 and OAC 3745-270-07. MEF files associated with hazardous waste containers that are in storage at the FCP ~~FEMP~~ will be maintained on-site until all containers associated with an MEF have been dispositioned. Following inventory removal, the MEF file will be transferred to the Records Center for long-term storage. The Records Center provides for long-term storage of the facility's records. The address is:

690 East Crescentville Road
Cincinnati, Ohio 45246-1314
(513) 648-3500

C-3.0 WASTE ACCEPTANCE CRITERIA

This section identifies the steps that the facility would follow when accepting waste material from an off-site source. No hazardous waste from off-site facilities is accepted and/or stored at the FCP ~~FEMP~~ unless the conditions of the Consent Decree and its stipulated amendment are met. Under terms of the Consent Decree, "No hazardous or mixed waste from an off-site source not already listed in the [FCP ~~FEMP~~] Part B Permit Application, or a revision as of the

date of entry of this Consent Decree, shall be stored, disposed or treated at the [FCP ~~FEMP~~] without the prior approval of the State of Ohio."

The FCP does not currently anticipate receiving any hazardous waste generated from off-site sources. However, in the event that this would be required, the FCP will obtain approval from Ohio EPA in accordance with the Consent Decree and its Stipulated Amendment prior to receiving this waste. Specific provisions for accepting this waste at the FCP would be discussed with Ohio EPA at that time.

~~The FEMP may accept samples for treatability studies on occasion from other off-site DOE facilities. The treatability samples involved are managed to meet the requirements of the exclusion as set fourth in OAC 3745-51-04(F) and 40 CFR 261.4(f). Upon conclusion of the treatability study, any unused material will be returned to the original sample collector off-site following the exclusion requirements referenced above. Any residuals generated during the treatability study will be dispositioned as waste and returned to the off-site generator from which the treatability study material was obtained. An exception will be made for: 1) process wastewater which may be discharged under the sites NPDES permit, and 2) small amounts of contact waste such as gloves, rags, etc., that in the discretion of the project manager can be handled within established FEMP procedures, available manpower, and storage capacity. Acceptance of this material will only undergo a piece count verification due to the limited amount of material involved in a treatability study. All information gained concerning the properties of the material which were evaluated to determine a treatability study workup will be available and maintained on file. Prior to accepting material for the purposes of conducting a treatability study, the FEMP will provide a 45 day notice to OEPA in accordance with OAC 3745-51-04(F)(1) and (9) and 40 CFR 261.4(f)(1) and (9).~~

~~The State of Ohio has been notified that the FEMP accepts mixed wastes (with a radionuclide content that originated from the FEMP) from laboratories that are performing chemical and geotechnical analysis of samples collected from the FEMP. This includes waste samples sent to laboratories for treatability studies. All sample materials returning to the FEMP are being returned to the original sample collector (the FEMP) and managed under the exclusion as set~~

~~forth in OAC 3745-51-04 and 40 CFR 261.4. Upon receipt at the FEMP, returned samples are verified against an inventory list. Any discrepancies will be resolved with the off-site laboratory. No additional confirmatory sampling is required if the returned samples match the inventory list.~~

~~It is FEMP policy that off-site laboratories are responsible for the management and disposal of used samples and wastes generated from the analyses of FEMP samples. The FEMP will only accept unopened sample containers from off-site labs under certain conditions. Labs must have all licenses and agreements in place to accept and dispose of FEMP samples and resultant waste materials. Although it is not likely that the FEMP would accept hazardous waste generated from off-site labs under the current policy, this information has been retained in the permit application in case circumstances would arise which would require the FEMP to receive these wastes.~~

~~A decision diagram of the pre-acceptance phase for wastes received from off-site is shown in Figure C-8. A copy of the Waste Characterization Process for off-site receipts is shown in Figure C-11.~~

~~C-3.1 OPERATIONS~~

~~Generators of lab waste will provide the FEMP with waste characterization data for each waste stream shipped to the FEMP from an off-site facility as detailed in the Material Evaluation Form in Figure C-2. Off-site generators of lab waste will provide the same types of data and level of detail that is required to characterize waste generated at the FEMP. Additional data required by the FEMP that is not included on the Material Evaluation Form is submitted to the FEMP as an attachment to the form, including a Waste Analysis Certification/Request for Transfer Form (See Figure C-10). This data precedes actual shipment of the waste so that FEMP personnel can review the data and confirm that the waste can be stored at the FEMP. The generator will furnish information for each waste stream such as:~~

- ~~Physical parameters such as pH, color, physical state, flashpoint, particle size, specific gravity, density, viscosity, liquid content, compatibility;~~
- ~~TCLP analytical results for toxicity characteristic constituents;~~
- ~~RCRA waste code(s) with analytical data if the codes have been determined on the basis of analytical information;~~
- ~~Land disposal restriction information such as total organic carbon, total suspended solids, constituent specific organic scans as necessary; and~~
- ~~Generator certifications that the information for each waste stream is complete and accurate.~~

~~Receipt of Laboratory Waste~~

~~Waste characterization data is reviewed by the Waste Characterization personnel at the FEMP. After it is determined that the waste is from the FEMP, the generator is notified to schedule shipment of the waste.~~

~~When hazardous waste from off-site laboratories arrives at the FEMP, acceptance verification is initiated by facility personnel. The following areas are examined prior to acceptance of the waste:~~

- ~~Documentation;~~
- ~~Manifest and land disposal notification/certification;~~
- ~~Verification of manifest information; container count, weight, waste codes, etc.;~~
- ~~Container condition and labeling; and~~
- ~~Fingerprint analysis of the waste (as necessary).~~

~~Designated personnel examine the hazardous waste manifest and land disposal restriction notification and certifications. Absent or incomplete receiving/shipping documentation such as an incomplete hazardous waste manifest or incomplete or missing land disposal restriction information are corrected or completed prior to acceptance of the hazardous waste shipment.~~

~~After verification of container condition and proper labeling, contents of the containers are examined to verify the physical state of the waste. Additional/confirmatory sampling and analysis may be conducted as necessary based on a review of data provided by the generator and the results from the verification of the waste shipped. The purpose of this verification is to ensure that: 1) laboratory waste matches the MEF which has been completed prior to shipment and 2) safe storage is achieved based on the materials characteristics. As necessary, the sample undergoes a fingerprint analysis which includes pH, physical state, flashpoint, specific gravity, and reactivity. Table C-9 outlines rational for preacceptance and fingerprint acceptance/rejection based on analytical tests for a particular waste category.~~

~~Between receipt of the hazardous waste and verification, the hazardous waste is segregated from other hazardous waste stored at the FEMP or other hazardous waste undergoing acceptance verification. If the hazardous waste is rejected, the containers will remain segregated until the shipment is accepted or returned to the off-site generator.~~

~~The generator is contacted immediately by phone if any discrepancies or other problems are discovered in documentation, condition of containers, or identification of the hazardous waste. If discrepancies cannot be resolved, the generator is informed that the hazardous waste shipment has been rejected. The FEMP will send a letter describing the discrepancy and the attempts to resolve the discrepancy to OEPA if the discrepancy is not resolved within 45 days of hazardous waste receipt.~~

~~**Compatibility**~~

~~Upon acceptance of the waste, a Reactivity Group Code is stenciled onto the container. Each container is assigned a storage location based on the physical state and its Reactivity Group Code. Any subsequent movement of the hazardous waste at the FCP FEMP is recorded in the hazardous waste tracking system. Procedures are outlined in Section C-2.1.~~

~~C-3.2 ANALYSIS~~

~~Analytical procedures described in Section C-2.2 will also be applicable for wastes accepted from off-site. Analysis will be performed and repeated for wastes to be received from off-site generators under any of these conditions:~~

- ~~Before the first shipment, and at least annually thereafter;~~
- ~~Whenever the process generating the waste changes; or~~
- ~~The waste received does not match the manifested waste preacceptance ranges and the discrepancy cannot be resolved with the generator.~~

~~C-3.3 LAND DISPOSAL RESTRICTIONS~~

~~Land Disposal Restrictions applicable for FEMP hazardous or mixed wastes shall be applicable for other hazardous or mixed wastes received from off-site. FEMP waste procedures are outlined in Section C-2.~~

~~C-3.4 QUALITY ASSURANCE/QUALITY CONTROL~~

~~The quality assurance and quality control provisions for the waste acceptance shall be in compliance with applicable provisions of the latest edition of the Sitewide CERCLA Quality Assurance Project Plan. Additionally, the Quality Assurance Program Description shall be applicable. Additional QA/QC provisions are discussed in Section C-2.4.~~

~~C-3.5 RECORDS~~

~~As discussed in Section 3.1, submission of a completed MEF (Figure C-2) and WAC Certification/Request for Transfer form (Figure C-9) is required prior to acceptance of any hazardous waste from off-site sources. If visual inspection of the hazardous waste and fingerprint analyses (if required) lead the FEMP to suspect that the notification/certification form is incorrect, issues are resolved prior to acceptance of the hazardous waste.~~

~~A Land Disposal Restrictions Notification must accompany each shipment of land disposal restricted waste received by FEMP. The Notification must be signed and dated by the generator. Completed LDR notification/certification forms from off-site generators are filed upon receipt as part of the FEMP RCRA Operating Record. A copy of all hazardous waste manifests will be maintained on file for at least three years. A copy of the Ohio Consent to Service notices required will be maintained on file at the FEMP. All LDR forms will be maintained for the life of the facility, per OAC 3745-54-73 and 40 CFR 264.73 (b)(15) and (16). MEF files associated with hazardous waste containers received from an off-site facility that are in storage at the FEMP will be maintained on site until all containers associated with an MEF have been dispositioned. Following inventory removal, the MEF file will be transferred to the Records Center for long-term storage. The Records Center provides for long-term storage of the facility's records. The address is:~~

~~690 East Crescentville Road~~
~~Cincinnati, Ohio 45246-1314~~
~~(513) 648-3500~~

C-4.0 STORAGE AND MANAGEMENT OF WASTES

This section presents several items pertaining to how waste characteristics affect the management of hazardous wastes at the FCP ~~FEMP~~.

Consolidation of Wastes

When two or more wastes are consolidated, a review shall be conducted to ensure that the wastes to be consolidated are compatible. The review consists of evaluating the known characteristics of the material. If, after review of analytical data or other supporting documentation it is determined that there is insufficient information to evaluate compatibility, but prior to consolidating material together from different waste streams, aliquots representing the materials will be added to each other. ASTM D5058-90 test method A and B will be used to determine reactions which would indicate the materials are not compatible. Fingerprint analyses (i.e. pH, water-reactivity and flash point testing) may also be used to assess the compatibility of some wastes

for bulking (e.g. for off-site treatment by incineration). Consolidation is not used as a form of treatment.

Compatibility of Waste with Overpacks

Compatibility of wastes will be monitored in accordance with provisions described earlier. In situations where containers are leaking and require overpacking, the overpack containers will be compatible with the leaking waste.

Wastewater Exclusion

Under provisions of OAC 3745-51-03 and 40 CFR 261.3(a), certain wastewaters are excluded from the regulatory definition of hazardous waste, and consequently are not covered by this RCRA Part B Permit Application.

~~**Additional Requirements Pertaining to Storage of Restricted Wastes**~~

~~Hazardous waste stored in areas without secondary containment is limited to solids only. These materials are evaluated for the presence of free liquids using SW-846 method 9095, Paint Filter Liquids Test when the materials are not visually noted to be a dry/granular solid. Section D further explains which areas are designated for the storage of wastes without free liquids.~~

C-5.0 OFF-SITE SHIPMENT OF WASTES

Hazardous wastes shipped off-site shall be manifested under the appropriate hazardous waste manifest. This form will vary, based on the ultimate disposition of the waste (states require use of their own form; for this reason, a copy of the manifest has not been included). In addition to the manifest, ~~the receiving facility's~~ an LDR notification/ certification form shall be included with the shipment.

Lab Packs

The FCP ~~FEMP~~ completes specific notification/certification forms when shipping hazardous waste lab packs to off-site facilities for treatment under the alternative treatment standards for

lab packs. The notification includes the Manifest Number and the Hazardous Waste No. The certification is signed by an authorized facility representative.

Notification and Certification for Wastes to be Further Managed

Prior to shipment of any hazardous waste stored at the FCP ~~FEMP~~ to an off-site facility, the FCP ~~FEMP~~ completes a notification/certification form in accordance with the requirements for generators in OAC 3745-270-07 and 40 CFR 268.7 as discussed below. The FCP ~~FEMP~~ also has the option of sending a one-time notification/certification with the initial shipment of waste. The completed notification/certification form is retained for a minimum of three years (extended indefinitely in the case of unresolved enforcement actions).

Notification and Certification Requirements

Figure C-6 presents examples of the notification and certification that may accompany each off-site hazardous waste shipment. The specific notification/certification forms that are used by the FCP ~~FEMP~~ are discussed below. The FCP ~~FEMP~~ frequently uses the notification forms of the receiving facility; however, at a minimum the language used will comply with 40 CFR 268 as shown in Figure C-6.

Waste Meeting Applicable Treatment Standards

If the hazardous waste meets applicable treatment standards, each off-site shipment of hazardous waste or the initial shipment of a hazardous waste to a facility is accompanied by the appropriate certification shown in Figure C-6. The certification includes the Manifest Number, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, and the constituents of concern for certain waste types. The certification is signed by an authorized facility representative.

Waste Not Meeting the Applicable Treatment Standard

If the hazardous waste does not meet applicable treatment standards, a notification accompanies each off-site shipment or the initial shipment of a hazardous waste to a facility (see sample form in Figure C-5). The notification includes the Manifest Number, Hazardous Waste No., the Subcategory if applicable, the Treatability Group, and the constituents of

concern for certain waste types unless the waste will be treated and monitored for all constituents. The sample notification form for hazardous wastes not meeting the applicable treatment standards is provided in Figure C-5.

Waste with Applicable Extensions

If a hazardous waste is subject to a case-by-case extension or a national capacity variance, the notification identified as "Restricted Wastes Exempt from Land Disposal Prohibitions" in Figure C-5 is completed prior to shipment of the hazardous waste. The notification includes the Manifest Number and the Hazardous Waste No. The notification also identifies the specific exemption that applies to the hazardous waste and the date the waste is subject to the prohibition.

Characteristic Wastes That Are No Longer Hazardous

If residues from treatment of a characteristic waste which has been treated to meet LDR treatment standards are shipped to a Subtitle D landfill, the FCP ~~FEMP~~ will complete a one-time certification for submittal to Ohio EPA. This certification will include the name and address of the Subtitle D facility and a description of the waste as initially generated (including Hazardous Waste No., Treatability Group, and the underlying hazardous constituents). The certification is signed by an authorized facility representative.

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

ORGANIC LIQUIDS

Description

This category includes liquids/slurries with a total organic carbon (TOC) greater than, or equal to 1%. Slurries must be pumpable (e.g., suspended/settled solids can be up to approximately 35-40%). Only liquids/slurries packaged/stored in bulk form (i.e., tank stored, drummed bulk free liquids) are included in this category. Liquids packed in lab pack-type configuration are categorized as labpacks.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Having a total organic carbon (TOC) greater than or equal to 1%.
- Must be a pumpable liquid.
- Free of large objects or items.

Typical Waste Codes

D001 (ignitable liquids)
D012, D018, D019, D020, D021, D022, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D042, D043 (TCLP organics)
F001, F002, F003, F005 (spent solvents)

Other Possible Waste Codes

D002 (corrosive liquids)
D004, D005, D006, D007, D008, D009, D010, D011 (TCLP metals)

Remotely Possible Waste Codes

F004, F027, P004, P022, P037, P041, P048, P050, P051, P059, P071, P082, P094, P123, U002, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U041, U043, U044, U045, U047, U048, U050, U052, U055, U056, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U096, U101, U102, U105, U106, U107, U108, U112, U117, U120, U121, U123, U127, U128, U129, U130, U131, U141, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U247, U359 (discarded or off-spec commercial product not suitable for recovery)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

ORGANIC LIQUIDS

Characterization Requirements

Flash Point, pH, Physical State, Specific Gravity (optional), Color, Metals and Organic Analysis, % Ash (optional), Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Flash Point, pH, Physical State, Specific Gravity, Color~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

AQUEOUS LIQUIDS

Description

This category includes liquids/slurries with a total organic carbon (TOC) less than 1%. Slurries must be pumpable (e.g., suspended/settled solids can be up to approximately 35-40%). Only liquids/slurries packaged/stored in bulk form (i.e. tank stored, drummed bulk free liquids) are included in this category. Liquids packed in lab pack-type configuration are categorized as lab packs.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Having a total organic carbon (TOC) less than 1%.
- Must be a pumpable liquid.
- Free of large objects or items.

Typical Waste Codes

D002 (corrosive liquids)
D004, D005, D006, D007, D008, D009, D010, D011 (TCLP metals)

Other Possible Waste Codes

D001 (ignitable liquids)
D001 (oxidizer)
D012, D018, D019, D020, D021, D022, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D042, D043 (TCLP organics)
F001, F002, F003, F005 (spent solvents)

Remotely Possible Waste Codes

P098, U134 (discarded or off-spec commercial product not suitable for recovery)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

AQUEOUS LIQUIDS

Characterization Requirements

Flash Point, pH, Physical State, Specific Gravity (optional), Color, Metals and Organic Analysis, TOC (optional), Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Flash Point, pH, Physical State, Specific Gravity, Color~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

ORGANIC SLUDGES/PARTICULATES

Description

This category includes solid process residues with an organic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris materials provided the amount of debris is less than 50% (Note: Based on LDR debris rule). As opposed to Inorganic Sludges/Particulates, wastes in this category would not leave a large residue when thermally treated.

Example waste materials in this category are:

- organic sludges, activated carbon, organic resins, absorbed liquids (organic particulate absorbents)

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of less than 50% debris based on LDR debris rule.

Typical Waste Codes

D001 (ignitable liquids)
D012, D018, D019, D020, D021, D022, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D042, D043 (TCLP organics)
F001, F002, F003, F005 (spent solvents)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

ORGANIC SLUDGES/PARTICULATES

Other Possible Waste Codes

D002 (corrosive)
D004, D005, D006, D007, D008, D009, D010, D011 (TCLP metals)

Remotely Possible Waste Codes

F004, F027, P004, P022, P037, P041, P048, P050, P051, P059, P071, P082, P094, P098, P123, U002, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U041, U043, U044, U045, U047, U048, U050, U052, U055, U056, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U096, U101, U102, U105, U106, U107, U108, U112, U117, U120, U121, U123, U127, U128, U129, U130, U131, U134, U141, U151, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U247, U359 (spill cleanup residues or discarded or off-spec commercial product not suitable for recovery)

Characterization Requirements

Flash Point, pH, Physical State, Specific Gravity (optional), Color, Metals and Organic Analysis, Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Flash Point, pH, Physical State, Specific Gravity, Color~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

INORGANIC SLUDGES/PARTICULATES

Description

This category includes solid process residues with a predominantly inorganic matrix. Solid process residues are solids that do not fit the definition of debris. Typically these solids are sludge or particulate materials. Waste in this category may also contain some debris materials provided the amount of debris is less than 50%. (Note: Based on LDR debris rule).

The solids in this category may be contaminated with, or contain organics, such that thermal treatment is required. However, the matrices are predominantly inorganic such that thermal treatment would result in a high residue. Example waste materials in this category are:

- sludges, ashes, sand blasting media, absorbed aqueous or organic liquids (on inorganic particulate absorbents), ion exchange resins, and paint chips/residues

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of less than 50% debris based on LDR debris rule.

Typical Waste Codes

D001 (oxidizer)
D004, D005, D006, D007, D008, D009, D010, D011 (TCLP metals)

Other Possible Waste Codes

D002 (corrosive),
D003 (oxidizers; water-reactives; reactive cyanides)
D012, D018, D019, D020, D021, D022, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D042, D043 (TCLP organics)
F001, F002, F003, F005 (spent solvents)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

INORGANIC SLUDGES/PARTICULATES

Remotely Possible Waste Codes

F004, F027, P004, P022, P037, P041, P048, P050, P051, P059, P071, P082, P094, P098, P123, U002, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U041, U043, U044, U045, U047, U048, U050, U052, U055, U056, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U096, U101, U102, U105, U106, U107, U108, U112, U117, U120, U121, U123, U127, U128, U129, U130, U131, U134, U141, U151, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U247, U359 (inorganic spill cleanup residues or discarded or off-spec commercial product not suitable for recovery)

Characterization Requirements

Flash Point, pH, Physical State, Specific Gravity (optional), Color, Metals and Organic Analysis, Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Flash Point, pH, Physical State, Specific Gravity, Color~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

CEMENTED SOLIDS

Description

This category includes sludges or solids (e.g., particulates, etc.) that have been solidified/stabilized with cement or other solidifying agents but do not meet LDR treatment standards. These wastes may require pretreatment (e.g., crushing/grinding) prior to subsequent LDR treatment.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of less than 50% debris based on LDR debris rule.

Typical Waste Codes

D004, D005, D006, D007, D008, D009, D010, D011 (TCLP metals)

Other Possible Waste Codes

None Expected

Remotely Possible Waste Codes

F001, F002, F003, F005 (spent solvents)

Characterization Requirements

Physical Description, Material Safety Data Sheet (MSDS) or metal analysis, Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical inspection of container contents~~.

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

ORGANIC DEBRIS

Description

This category includes wastes with matrices meeting the definition of debris per the 8/19/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically this category is defined for wastes that contain >90% organic debris.

Example organic debris materials are:

- Plastic, rubber, wood, paper, and cloth.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of greater than or equal to 50% debris based on LDR debris rule.
- Composed of greater than 90% organic debris.

Typical Waste Codes

D012, D018, D019, D020, D021, D022, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D042, D043 (TCLP organics)
F001, F002, F003, F005 (spent solvents)

Other Possible Waste Codes

D004, D005, D006, D007, D008, D009, D010, D011 (TCLP metals)

Remotely Possible Waste Codes

F004, F027, P004, P022, P037, P041, P048, P050, P051, P059, P071, P082, P094, P098, P123, U002, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U041, U043, U044, U045, U047, U048, U050, U052, U055, U056, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U096, U101, U102, U105, U106, U107, U108, U112, U117, U120, U121, U123, U127, U128, U129, U130, U131, U134, U141, U151, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U247, U359 (organic debris contaminated with these chemicals)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

ORGANIC DEBRIS

Characterization Requirements

Physical State, Visual verification for size/percentage of debris, Metals and Organic Analysis, Color, Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical State, Visual verification for size/percentage of debris, Color~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

INORGANIC DEBRIS

Description

This category includes wastes with matrices meeting the definition of debris per the 8/19/92 LDR debris rulemaking (57 FR 37194, 8/18/92). More specifically this category is defined for wastes that contain >90% inorganic debris.

Example inorganic debris materials are:

- metal shapes (e.g. equipment, scrap), metal turnings, glass (e.g., light tubes, leaded glass, etc.), ceramic materials, concrete, rocks

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of greater than or equal to 50% debris based on LDR debris rule.
- Composed of greater than 90% inorganic debris.

Typical Waste Codes

D004, D005, D006, D007, D008, D009, D010, D011 (TCLP metals)

Other Possible Waste Codes

D012, D018, D019, D020, D021, D022, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D042, D043 (TCLP organics)
F001, F002, F003, F005 (spent solvents)

Remotely Possible Waste Codes

F004, F027, P004, P022, P037, P041, P048, P050, P051, P059, P071, P082, P094, P098, P123, U002, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U041, U043, U044, U045, U047, U048, U050, U052, U055, U056, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U096, U101, U102, U105, U106, U107, U108, U112, U117, U120, U121, U123, U127, U128, U129, U130, U131, U134, U141, U151, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U247, U359 (inorganic debris contaminated with these chemicals)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

INORGANIC DEBRIS

Characterization Requirements

Physical State, Visual verification for size/percentage of debris, Metals and Organic Analysis, Color, Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical State, Visual verification for size/percentage of debris, Color~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

HETEROGENEOUS DEBRIS

Description

This category includes wastes with matrices meeting the definition of debris per the 8/19/92 LDR debris rulemaking (57FR37194, 8/18/92). This category includes debris that do not meet the criteria for categorization as either Organic or Inorganic Debris. This category also includes mixtures of debris and solid process residues or soil, provided debris comprises more than 50% of the waste

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of greater than or equal to 50% debris based on LDR debris rule.
- Composed of a mixture of inorganic and organic debris.

Typical Waste Codes

D004, D005, D006, D007, D008, D009, D010, D011 (TCLP metals)
D012, D018, D019, D020, D021, D022, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D042, D043 (TCLP organics)

Other Possible Waste Codes

F001, F002, F003, F005 (spent solvents)

Remotely Possible Waste Codes

F004, F027, P004, P022, P037, P041, P048, P050, P051, P059, P071, P082, P094, P098, P123, U002, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U041, U043, U044, U045, U047, U048, U050, U052, U055, U056, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U096, U101, U102, U105, U106, U107, U108, U112, U117, U120, U121, U123, U127, U128, U129, U130, U131, U134, U141, U151, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U247, U359 (heterogenous debris contaminated with these chemicals)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

HETEROGENEOUS DEBRIS

Characterization Requirements

Physical State, Visual verification for size/percentage of debris, Metals and Organic Analysis, Color, Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical State, Visual verification for size/percentage of debris, Color~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

SOILS WITH ORGANICS

Description

Soils contaminated with hazardous organic constituents that are stored in waste containers.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Free of large objects or items
- Composed of less than 50% debris based on LDR debris rule.
- Contaminated with organics.

Typical Waste Codes

D012, D018, D019, D020, D021, D022, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D042, D043 (TCLP organics)

Other Possible Waste Codes

F001, F002, F003, F005 (spent solvents)

Remotely Possible Waste Codes

F004, F027, P004, P022, P037, P041, P048, P050, P051, P059, P071, P082, P094, P123, U002, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U041, U043, U044, U045, U047, U048, U050, U052, U055, U056, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U096, U101, U102, U105, U106, U107, U108, U112, U117, U120, U121, U123, U127, U128, U129, U130, U131, U141, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U247, U359 (contaminated soil from spills of these chemicals)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

SOILS WITH ORGANICS

Characterization Requirements

Physical State, Metals and Organic Analysis, Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical State~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

SOILS WITH INORGANICS

Description

Soils contaminated with hazardous inorganic constituents that are stored in waste containers.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Free of large objects or items
- Composed of less than 50% debris based on LDR debris rule.
- Contaminated with inorganics.

Typical Waste Codes

D004, D005, D006, D007, D008, D009, D010, D011 (TCLP metals)

Other Possible Waste Codes

None Expected

Remotely Possible Waste Codes

P098, U134, U151 (contaminated soil from spills of these chemicals)

Characterization Requirements

Physical State, Metals and Organic Analysis, Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical State~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

SOILS WITH ORGANICS AND INORGANICS

Description

Soils contaminated with hazardous constituents that are stored in waste containers. Includes soils contaminated with organics and inorganics. Waste in this category may include debris, provided it is less than 50% of the waste.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Composed of less than 50% debris based on LDR debris rule.
- Free of large objects or items

Typical Waste Codes

D004, D005, D006, D007, D008, D009, D010, D011 (TCLP metals)
D012, D018, D019, D020, D021, D022, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D042, D043 (TCLP organics)

Other Possible Waste Codes

F001, F002, F003, F005 (spent solvents)

Remotely Possible Waste Codes

F004, F027, P004, P022, P037, P041, P048, P050, P051, P059, P071, P082, P094, P098, P123, U002, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U041, U043, U044, U045, U047, U048, U050, U052, U055, U056, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U096, U101, U102, U105, U106, U107, U108, U112, U117, U120, U121, U123, U127, U128, U129, U130, U131, U134, U141, U151, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U211, U213, U220, U226, U227, U228, U239, U247, U359 (contaminated soil from spills of these chemicals)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

SOILS WITH ORGANICS AND INORGANICS

Characterization Requirements

Physical State, Metals and Organic Analysis, Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical State~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

LAB PACKS

Description

This category includes wastes with one or more small containers of free liquids or solids surrounded by solid materials (virgin or waste materials) within a larger container.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Name of Product or Material must be known.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.
- Maximum individual package size of 5 gallons.
- Must be shipped with a detailed Inventory List signed and certified by the person or persons who prepared the shipment.

Typical Waste Codes

D001 (ignitable; flash point)
D002 (corrosivity; pH)
D012, D013, D014, D015, D018, D019, D020, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D031, D032, D033, D034, D035, D036, D038, D039, D040, D042, D043 (TCLP organics)
D004, D005, D006, D007, D008, D010, D011 (TCLP metals)
F004, F027, P004, P012, P018, P022, P037, P041, P048, P050, P051, P059, P071, P082, P094, P098, P106, P113, P115, P119, P120, P123, U002, U003, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U041, U043, U044, U045, U047, U048, U050, U052, U055, U056, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U096, U101, U102, U105, U106, U107, U108, U112, U117, U120, U121, U122, U123, U127, U128, U129, U130, U131, U141, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U211, U213, U218, U219, U220, U226, U227, U228, U239, U247, U359, P098 (discarded or off-spec commercial product not suitable for recovery)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

LAB PACKS

Other Possible Waste Codes

D001 (oxidizer)
D003 (reactivity; unstable, violent change)

Remotely Possible Waste Codes

None Expected

Characterization Requirements

Physical Description, Copy of Material Safety Data Sheet (MSDS) and additional chemical information as available, Identification of UHCs (where applicable)

~~**Off-site Acceptance (Fingerprint) Analysis**~~

~~Physical inspection of container contents.~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

REACTIVE METALS

Description

This category includes bulk reactive metals and equipment contaminated with reactive metals. Bulk reactive metals include sodium, alkali metal alloys, aluminum fines, zirconium fines, or pyrophoric materials. Contaminated equipment includes piping, pumps, and other materials with a residue of reactive metals that cannot be separated from the equipment medium.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Name of Product or Material must be known.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.

Typical Waste Codes

D001 (ignitable solid)
D003 (water reactive)

Other Possible Waste Codes

None Expected

Remotely Possible Waste Codes

None Expected

Characterization Requirements

Flash Point, Physical State, Color, Material Safety Data Sheet (MSDS) and additional chemical data as available, Identification of UHCs (where applicable)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

~~REACTIVE METALS~~

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical inspection of container contents.~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

EXPLOSIVES

Description

This category includes waste materials that may explode during normal or extreme handling. This includes devices such as explosive switches and activators used in fire/explosion suppression systems. This category may remotely include rags that have been soaked in nitric acid and subsequently stored in containers.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Name of Product or Material must be known.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.
- Terminals if present must be protected from making electrical contact.

Typical Waste Codes

D003 (explosive)

Other Possible Waste Codes

D001 (oxidizer)

Remotely Possible Waste Codes

None Expected

Characterization Requirements

Physical Description, Material Safety Data Sheet (MSDS) and additional chemical data as available, Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical inspection of container contents.~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

COMPRESSED GASES

Description

This category includes pressurized aerosol cans and gas cylinders of any gas composition. Non-pressurized aerosol cans and gas cylinders would be classified as debris.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Name of Product or Material must be known.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.
- Valves must be secure and protected to ensure contents are not released.

Typical Waste Codes

D001 (ignitable liquid; flash point)
D001 (ignitable; compressed gas)

Other Possible Waste Codes

D002 (Corrosivity)
D004, D005, D006, D007, D008, D009, D010, D011 (TCLP metals)
D018, D019, D035, D039, D040 (TCLP organics)

Remotely Possible Waste Codes

None Expected

Characterization Requirements

Physical Description, Material Safety Data Sheet (MSDS) and additional chemical data as available
Identification of UHCs (where applicable)

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

~~COMPRESSED GASES~~

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical inspection of container contents.~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

LIQUID MERCURY

Description

This category includes any wastes containing bulk volumes of elemental liquid mercury. The category includes labpacks of strictly liquid mercury or other containers containing bulk mercury.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.

Typical Waste Codes

D009 (spent mercury)
U151 (mercury; unused or off-spec commercial product)

Other Possible Waste Codes

None Expected

Remotely Possible Waste Codes

None Expected

Characterization Requirements

Physical Description, Material Safety Data Sheet (MSDS) and additional chemical data as available.

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical inspection of container contents.~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

ELEMENTAL LEAD (ACTIVATED AND NON-ACTIVATED)

Description

This category includes both surface contaminated and activated elemental lead. Surface contaminated lead materials include bricks, counterweights, and other shielding materials.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- A Material Safety Data Sheet (MSDS) must be provided for all commercial products for which chemical composition is not readily known.

Typical Waste Codes

D008 (TCLP lead)

Other Possible Waste Codes

None Expected

Remotely Possible Waste Codes

None Expected

Characterization Requirements

Physical Description, Material Safety Data Sheet (MSDS) or metal analysis.

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical inspection of container contents.~~

TABLE C-3

DOE WASTE CATEGORIES DESCRIPTIONS AND ANALYSIS RATIONALE

BATTERIES (LEAD ACID, CADMIUM)

Description

This category includes lead acid, cadmium, and miscellaneous batteries.

Material Requirements

- Must be packaged and shipped in accordance with Department of Transportation requirements.
- Terminals must be protected from making electrical contact (e.g., taped).

Typical Waste Codes

D002 corrosivity (liquid electrolyte only)
D006, D008, D009 (TCLP metals)

Other Possible Waste Codes

None Expected

Remotely Possible Waste Codes

None Expected

Characterization Requirements

Physical Description, Material Safety Data Sheet (MSDS) if available, Identification of UHCs (where applicable)

~~Off-site Acceptance (Fingerprint) Analysis~~

~~Physical inspection of container contents.~~

TABLE C-4
RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID#	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE#	DETERMINATION BASIS
201	1	CRANKCASE OIL	D018	PK,MSDS
278	4	CONTAMINATED GRAPHITE CARBON	D005, D008	PK,4,9
380	8	ABSORBENT PADS, RAGS AND GLOVES	D039, F002	PK,1,3,5,6,9
386	1	FLOOR SUMP CLEANOUT SLUDGE	D018, D019, D039, D040	PK,1,2,4,7,8,9
406	16	AEROSOL CANS	D001	PK,MSDS
419	1	XYLENE	D001	PK,MSDS
427	20	NICKEL-CADMIUM BATTERIES (NON-RAD)	D002, D006	PK
434	8	SOLIDS CONTAMINATED BY LAB SAMPLES & MATERIALS	F003	PK,1,2,4,5,6,9
438	1	HYDRAULIC OIL FROM BALER IN DRUM RECONDITIONING	D018	PK,1,3,4,7,8,9
459	1	PAINT	D001, F001, F002	PK,1,4,8,9
460	4	OIL & SOLVENT PCB SAMPLES	D006, D007, D008, F002	PK,1,3,7,8,9
479	1	USED PAINT THINNER	D001, D008, D035, F003, F005	PK,1,3,8,9
480	1	USED OIL	D018, F002	PK,1,3,7,9
485	1	KEROSENE	D001	PK,MSDS,1,3,7,8,9
507	1	CONTAMINATED SOLVENT GENERATED IN THE PILOT PLANT. (MEK)	D001, D035	PK,MSDS,1,3,7,8,9
514	1	PAINT WASTE FROM PAINTING BOOTH	D001, D007, D008, F002, F003, F005	PK,1,4,7,8,9
533	1	PAINT: GRAY EPOXY	D001, D006	PK,1,3,8,9
538	9	BORING # 1508	F002, F005	PK
584	1	KEROSENE (DIESEL FUEL)/SLUDGE/WATER FROM UST #3	D001, D018	PK,MSDS
633	1	OIL FROM UNKNOWN GENERATION SOURCE	D007, D008, D009	PK,1,3,4,7,8,9
635	7	MERCURY SPILL CLEAN-UP AND SPENT MERCURY BATTERIES	D009	PK
661	9	BORING # 1594 - FROM NORTHWEST CORNER BLDG. 12	F002	PK,2,4,9,12
817	4	LEAD BASED PAINT CHIPS	D008	PK
874	7	LEAD BRICKS, LEAD WINDOW SASHINGS, BABBIT HAMMER	D008	PK
1013	1	BLACK W/R DRUM ENAMEL	D001	PK, MSDS
1016	1	CLEAR DRUM LINER PAINT	D001	PK, MSDS
1199	7	MERCURY CONTAMINATED FLOOR TILE & PIPE INSULATION	D009	PK,MSDS
1369	3	DRUMMED SLUDGE FROM DRYING BEDS	F002	PK,1,4,9
1380	4	NON OILY SUMP CLEANOUT MATERIAL FROM PLANT 8 OPERATIONS	D007, D008	PK,1,3,4,5,7,8,9
1381	4	HIGH LEVEL CLEANING RESIDUES	D006, D011	PK,1,4,9
1389	4	SCRAP U3O8 FROM OXIDATION FURNACE #1	F002	PK,1,4,5,9
1411	1	CONTAMINATED SOLVENT FROM PAINT SHOP	D001, D005, D007, D008, D009, D010, D011, D018, D019, D035, F002, F003, F005	PK,1,3,6,7,8,9
1423	1	CONTAMINATED INSOLUBLE OIL	D008, D009, D039, D040, F001, F002, F003, F005	PK,1,3,7,8,9
1427	8	MOP HEADS AND PADS CONTAMINATED WITH 1,1,1 - TRICHLOROETHANE	F002	PK,1,4,5,9

See final page of keys to DETERMINATION BASIS codes and DOE WASTE STREAM TYPES

TABLE C-4
RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID#	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE#	DETERMINATION BASIS
1438	3	NON-OILY CLEANOUT SLUDGES FOR ROASTING	D039	PK,1,3,4,7,8,9
1447	1	SUMP WASTE FROM PLT 1 PAINTING BOOTH	D001	PK,1,3,7,8,9
1501	7	SPILL CLEANUPS OF OIL AND GAS FROM GASOLINE ENGINES	D018	MSDS
1575	2	URANYL NITRATE (UNH), EXCESS ANALYSIS BYPRODUCT	D002	PK,MSDS
1585	20	LEAD ACID BATTERY (BROKEN)	D002, D008	MSDS
1672	8	NON-BURNABLE TRASH	F001, F002	PK,1,2,4,5,6,9
1706	1	LAB WASTE, TCLP EXTRACT	D018, D021, D035, D038, D039, D040, D043, F002, F005	PK,1,4,7,8,9
1725	1	LUBRICATING OIL FROM GASOLINE ENGINES	D018	PK
1729	1	LEADED GASOLINE	D001, D008, D018	PK,1,3,8,9
1799	1	USED MINERAL SPIRITS	D001, D018	MSDS
1815	1	SPENT FUELS	D001, D018	MSDS
1906	7	HF TANK CLEAN-OUT MATERIAL	D007, U134	PK,MSDS,1,2,4,5,10
1946	10	SOIL CUTTINGS FROM OUTDOOR FIRING RANGE	D008	1,4,9,11
2014	3	EPOXY-PRIME COAT LDC-1000	D001, D035	MSDS
2016	3	PAINT BITUMASTIC 300 M A & B COLD TAR COATING	D001, D018, D026	MSDS
2048	5	SOLIDIFIED LAB WASTE	F001, F002, F005	PK
2224	1	FLOOR COATING BASE	D001	PK,MSDS
2395	7	CONTACT WASTE FROM CTC LAB	D007, D008, D009, D039, F001, F002, F005	PK
2418	7	BROKEN GLASS AND OLD FLOURESCENT LIGHT BULBS	D009	PK,MSDS,5
2498	1	LIQUIDS FROM PILOT PLANT SUMP RA#24	D008, D039	PK,MSDS,1,3,7,8,9,12
2499	7	CONCRETE ABANDONED PILOT PLANT SUMP	F002, F003	PK,1,4,9,13
2547	8	GASOLINE/DIESEL FUEL FILTERS	D018	PK,MSDS
2581	6	CONTAMINATED PALLETS	F002	PK,MSDS
2594	2	THORIUM NITRATE SOLUTION	D002, D006, D007	PK,3,7,9,13
2613	7	SCABBLED CONCRETE FROM DETREX STILL CLOSURE (PCB)	F001, F002	PK,1,4,9,11,13
2621	7	SCRAP METAL CONTAMINATED WITH F-LISTED SOLVENTS AND PCB-TSCA	F002, F005	PK
2625	8	CONTACT WASTE CONTAMINATED WITH F-LISTED SOLVENTS AND PCB - TSCA	F002, F005	PK
2626	3	SEDIMENT/SLUDGE CONTAMINATED WITH F-LISTED SOLVENTS & PCB - TSCA	D007, D008, D018, D029, D030, D032, D033, D040, F002, F005	PK,1,2,3,4,11
2674	9	PETROLIUM CONTAMINATED SOIL FROM OPEN TOP TANK TRENCH AREA AT FTF (NON-PCB)	F002, F005	PK,1,4,9,10,11,12,13
2681	4	SODIUM SULPHATE WASTE	F002, F003	PK,2,4,9,11,12
2724	4	MIXED POWDERS	D004, D008, D011	PK,2,4,6,9
2728	4	MISCELLANEOUS SAMPLES	D007	PK,4,6,9

TABLE C-4
RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID#	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE#	DETERMINATION BASIS
2760	3	SOLID/SLUDGE FROM LIQUID MIXED WASTE TANK DECONTAMINATION	D001, D004, D006, D007, D008, D010, D011, D018, D019, D021, D022, D026, D028, D029, D035, D038, D039, D040, D043	PK
2774	8	SOFT SOLIDS MIX FOR TREATMENT	D005, D008, D009, D018, D019, D021, D035, D039, D040, F001, F002, F003, F005, U019, U123, U210, U211	PK
2776	8	RIGID SOLIDS MIX FOR TREATMENT	D018, D039, F001, F002, F003, F005, U019, U210, U211	PK
2778	1	CONSOLIDATED NON-CORROSIVE LIQUIDS FOR TREAMTENT	D001, D018, D019, D021, D035, D039, D040, F001, F002, F003, F005, U019, U123, U210, U211	PK
2781	3	NON-DEBRIS SOLIDS W/NO D018 THROUGH D043	D007, D008, F001, F002, F003, F005, U019, U211	PK
2785	3	SLUDGES FROM THE IGNITABLE LIQUID TANK - BATCH 4 (PCB)	D001, D004, D007, D008, D010, D011, D018, D019, D035, D039, D040, F001, F002, F003, F005, U019	PK
2788	2	THORIUM NITRATE SOLUTION	D002, D005, D007, D008	PK
2795	4	SCABBLED CONCRETE FROM HWMU #3 CLOSURE	F002	PK,2,4,6,9,10
2812	7	LEAD & DEBRIS	D008	PK
2818	1	TBP KEROSENE FROM TANK D1-7	D019, D022, D039	PK
2862	1	METHYLENE CHLORIDE WASTE	D030, D032, F002	PK,MSDS
2887	4	FILTERED SOLIDS, PLANT 4 DECON WATER	D006, D008	PK,4,6
2892	1	ALUMINUM FIBERED ROOF COATING	D001	PK,MSDS
2900	4	TANK W-7 RESIDUE	D002	PK,4,9
2921	4	SUMP/TRENCH SLUDGES AND LIQUIDS FROM BLDG. 13A	D039, D040	PK,5
2937	8	TRASH & SLUDGE FROM BATCH 5	D004, D006, D007, D008, D010, D011, D018, D019, D026, D035, D038, D039, D040, D043, F001, F002, F003, F005	PK
2938	3	PCB SLUDGE FROM BATCH 6	D008, D018, D019, D022, D026, D029, D035, D038, D039, D040, D043, F001, F002, F003, F005	PK
2939	3	SLUDGE FROM BATCH 5	D004, D006, D007, D008, D010, D011, D018, D019, D026, D035, D038, D039, D040, D043, F001, F002, F003, F005	PK
2940	3	SLUDGE FROM BATCH 1	D004, D008, D010, D011, D018, D019, D021, D029, D039, D040	PK
2943	1	SPENT ACETONE & NITRIC ACID	D001, D002	PK
2944	1	SOLVENT & OIL CONSOLIDATION	D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D026, D027, D028, D029, D035, D038, D039, D040, D043	PK
2947	4	DISCARDED PROCESS RESIDUES TRAILER CAKES, WASTE SLURRIES, RAFFINATES FROM THE PILOT PLANT	D010	PK,1,2,4,6,9

TABLE C-4
RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID#	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE#	DETERMINATION BASIS
2948	2	PLANT 1 SAMPLING RINSATE	F001, F002, F003, F005	PK
2952	1	EXPIRED ORGANIC STANDARDS - PCB	D001, F027, P004, P022, P037, P048, P050, P051, P059, P071, P082, P094, P123, U002, U004, U012, U019, U021, U022, U024, U027, U028, U031, U036, U037, U039, U043, U044, U045, U047, U048, U050, U052, U055, U057, U060, U061, U066, U068, U070, U072, U073, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U088, U101, U102, U105, U106, U112, U120, U127, U128, U129, U130, U131, U141, U154, U159, U161, U165, U167, U168, U169, U170, U171, U179, U183, U185, U187, U188, U191, U192, U196, U203, U207, U208, U209, U210, U220, U226, U227, U228, U239	PK,5
2954	6	PCB CONTAMINATED CONTACT WASTE	F001, F002, F003, F005, U019	PK
2955	4	OU4 VITPP EXCESS SURROGATE SLURRY	D005, D008	PK
2956	2	BETZ FERROSPERSE	D002	PK,MSDS
2975	2	SULPHURIC ACID & PIPES	D002	PK
2976	7	CADMIUM COILS	D006	PK,MSDS
2982	4	TRENCH MATERIAL FROM AROUND 39A DRUM STORAGE FILLING STATION PAD FROM TRANE INCINERATOR HWMU AREA	D008, F002	PK
2987	7	DUST AND DUST BAGS FROM TRANE INCINERATOR	D008, F002	PK,5
2998	7	LEAD & ASBESTOS WIRE INSULATION FROM MSC	D008	PK
3008	1	VARIOUS LIQUIDS FROM TRANE INCINERATOR HWMU	D008, F002	PK
3011	3	OIL & GREASE RESIDUES REMOVED FROM TRANE INCINERATOR	D008, F002	PK
3027	6	DEBRIS FROM TRANE INCINERATOR DUST COLLECTOR AND BUFFALO DUST COLLECTOR	D008, F002	PK
3033	8	PCB RTAL CONTACT WASTE	F002, F005	PK
3037	1	LIQUIDS DRAINED FROM PUNCTURED AEROSOL CANS FROM AEROSOL PROJECT	D001, D007, D008, D035	PK,MSDS
3050	1	PAINT WASTE FROM AEROSOL CAN PUNCTURING PROJECT	D008, D035, F002	PK
3052	1	LIQUID PAINT IN ONE GALLON CANS FROM LEGACY AEROSOL PROJECT	D001, D006, D007, D008	PK
3059	1	PU COLUMN WASTE	D002	PK
3063	1	LIQUIDS FROM THE LEGACY LOW LEVEL LIQUIDS PROJECT	D039, F002	PK
3077	2	UNH	D002, D007, D008	PK
3133	1	USED MOTOR OIL	D018	PK,MSDS
3161	2	SODIUM HYDROXIDE	D002	PK,MSDS
3173	1	VARIOUS ADHESIVES	D001	PK,MSDS
3178	6	TRASH FROM BULKING BATCH 8	F001, F002, F003, F005, U019, U123, U210, U211	PK

TABLE C-4
RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID#	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE#	DETERMINATION BASIS
3180	6	OIL SATURATED RAGS FROM LEGACY TRASH SORTING PROJECT - PCB	D001, D006, D007, D008, D009, D010, D018, D019, D021, D035, D039, D040, F002, F003, F005	PK
3181	1	PAINT THINNERS FROM THE LEGACY TRASH SORTING PROJECT	D001, D008, D009, F002, F005	PK
3182	1	LIQUID PAINTS FROM THE LEGACY TRASH SORTING PROJECT	D001, D006, D007, D008, D035, D043	PK,MSDS
3183	3	UNEMPTY CANS OF DRIED PAINT FROM THE LEGACY TRASH SORTING PROJECT	D007, D008, D035	PK,MSDS
3184	1	USED MOTOR OILS FROM THE LEGACY TRASH SORTING PROJECT	D001, D005, D006, D007, D008,D009, D010, F002, F003, F005	PK,1,3,8,9
3204	1	LIQUID PAINT FROM BLDG. 71	D001, D006, D007, D008	PK,MSDS
3205	1	ADHESIVES FROM BLDG. 71	D001	PK,MSDS
3229	2	SULFURIC ACID	D002, D008	PK,MSDS
3238	1	ROLLER INK	D001	PK,MSDS
3244	1	RCRA HAZARDOUS ADHESIVES	D001, D035	PK
3293	1	CUMENE HYDROPEROXIDE	U096	PK,MSDS
3344	4	DUST COLLECTOR RESIDUES FROM PLANT 6	D006, D008	PK
3355	4	SUMP SLUDGE FROM PLANT 7	D006, D008	PK
3370	1	TH CONTAMINATED LIQUID PAINT	D001	PK,MSDS
3431	4	MISC. THORIUM SAMPLES	D005, D008	PK
3455	2	CAUSTIC SOLUTION FOR WWT	D002	PK,MSDS
3596	4	OIL / SLUDGE FROM PLANT 6	D008	PK
3610	1	USED OIL - PLANT 6 ROLLING MILL	D008	PK,MSDS
3655	2	RADIUM ANALYSIS WASTE	D002, D008	PK,MSDS
3702	1	ACID WASTE WITH METHANOL FROM LAB ANALYSES	D002, D007, D008	PK,MSDS
3734	6	BULKING PROJECT CONTACT WASTE	F001, F002, F003, F005	PK
3773	2	RCRA HAZARDOUS WATER FOR WWT	D002, D006, D007, D008, D009, D018, D019, D021, D035, D039, D040	PK
3793	1	TSCA BATCH 10	D001, D005, D008, D018, D040, F001, F002, U154	PK,1,3,8,9,10
3794	6	TSCA BATCH 10-CONTACT WASTE	F001, F002	PK
3795	7	LEAD & ASBESTOS CONTAMINATED LIQUID & DEBRIS	D008	PK
3799	4	NON-EXCLUDED SILO PROJECT MATERIAL	D004, D006, D007, D008, D010	PK
3822	2	LEAD-CONTAMINATED WASTE WATER (STORAGE ONLY)	D008	PK
3827	1	TSCA - BATCH 12	D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D026, D027, D028, D029, D035, D039, D040, D043, F001, F002, F003, F005, U019, U080, U154, U210, U211	PK

TABLE C-4
RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID#	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE#	DETERMINATION BASIS
3840	3	TSCA BATCH 13-PCB	D001, D007, D008, D018, D029, D039, D040, F001,F002, F003, F005, U002, U019, U080, U107, U154, U159, U210, U211, U220, U228, U239	PK
3842	99	SODIUM SULFIDE	D002, D003	MSDS
3844	6	BATCH 13 CONTACT WASTE	F001,F002, F003, F005, U002, U019, U080, U107, U154, U159, U210, U211, U220, U228, U239	PK
3850	1	AREA 2, PHASE 2 OIL DRUM	D005, D008	1,4,8,9
3859	8	DEBRIS AND SOLIDS CONTAMINATED WITH UNH	D005, D007, D008, D009	PK
10002	7	SCRAP SALTS	D005, D008	1,4,9
10003	3	OILY OXIDATION SLUDGES WITH HIGH FREE METAL	D001, D039, F002	1,4,7,8,9
10004	1	CONTAMINATED SOLVENT - TRICHLOR, PERCHLOR	D007, D018, D019, D021, D029, D039, D040, F001	PK,1,4,7,8,9
10007	3	OILY SLUDGES	D007, F001	1,4,7,8,9
10009	3	SLUDGES - SOLVENT (TRICHLOR, PERCHLOR, ETC.)	D001, D008, D035, F003, F005	1,4,7,8,9
10010	3	SLUDGES, OILY	D006, D008, D029, D039, D040	PK,1,4,7,8,9
10011	8	CONTAMINATED BURNABLES	D005	PK,1,4,9
10012	8	PCB CONTAMINATED BURNABLES	D039, D040, F002	PK,1,3,4,7,8,9,10
10016	3	OILY SLUDGE	D010, D035, F002	PK,MSDS,1,4,7,8,9
10021	3	SLUDGES, OILY	D008, D018, D019, F002	PK,1,4,7,8,9
10023	8	NON-RECOVERABLE TRASH - PCB	D008, F002	PK
10025	7	CONTAMINATED SOIL AND ROCKS	D005	PK
10026	3	1,1,1-TRICHLOROETHANE STILL BOTTOMS - PCB	D009, F001, F002	PK,1,3,4,9,10
10027	1	CONTAMINATED OIL, INSOLUBLE	D039, D040, F001	PK,MSDS,1,4,7,8,9
10028	3	SLUDGES, OILY	D008, D028	PK
10029	1	CONTAMINATED INSOLUBLE OIL	D006, D007, D008, D019, D029, D040, F001	PK,1,4,7,8,9
10031	3	FLOOR SUMP CLEANOUT SLUDGE	D029, F002	PK,1,4,7,8,9
20003	1	MIXED SOLVENTS FROM TANKS T-5 AND T-6	D001, D022, D028, D029, D035, F001, F002, F003, F005	PK,1,2,9,11
20021	1	CONTAMINATED INSOLUBLE OIL	D019, D029, D039, D040, F001	PK,1,2,4,7,8,9
20028	1	CONTAMINATED OIL - INSOLUBLE	D039, D040, F001	1,2,4,7,8,9
20031	1	CONTAMINATED OIL, INSOLUBLE GEAR OIL, LUBRICATING OIL	D006, D008, D010, D018, D019, D028, D029, D039, D040, F002	1,2,4,7,8,9
20037	3	PROCESS RESIDUES, TRAILER CAKES, SLURRIES, RAFFINATES	D029	2,4,9,11
20045	3	CONTAMINATED TBP AND/OR KEROSENE MIXTURES AND SLUDGES	D019, D022, D039, F002	PK,1,2,3,4,7,8,9,11
20047	4	SCRAP SALTS AND FLOOR SWEEPINGS - LOW FLUORIDE	D004, D008	2,4,9,11
20048	3	PROCESS RESIDUES, TRAILER CAKES, SLURRIES, RAFFINATES	F005	PK,1,4,9
20054	1	CONTAMINATED SOLVENT - TRICHLOR, PERCHLOR	D019, D022, D028, D029, D039, F001, F005	PK,1,2,4,7,8,9

TABLE C-4
RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID#	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE#	DETERMINATION BASIS
20135	7	DUST COLLECTOR BAGS	D006	PK
20139	7	SAMPLES, NON-METALLIC	D005	PK,1,4,7,8,9
20146	7	CONTAMINATED NON-BURNABLES	D006, D007, D008	5
30005	3	OILY SLUDGES	D001, D019, D039, D040, F002	PK,1,4,7,8,9
30010	3	SLUDGE FROM SERVICES BUILDING SUMP	D040, F002	PK,1,7,8,9
30033	1	CONTAMINATED SOLVENT - TRICHLOR, PERCHLOR	D001, F002, F003, F005	PK,1,4,5,7,8,9
30034	1	OIL CONTAMINATED WITH SOLVENTS (TANK 5)	D018, F001	PK,2,4,7,8,9
30036	4	DUST COLLECTOR RESIDUES - HIGH FLUORIDE	D006, D008	1,4,9
30037	3	PROCESS RESIDUES, TRAILER CAKES, SLURRIES, RAFFINATES	D039	PK,1,4,9
30042	3	WET SUMP OR FILTER CAKE - NON-OILY, NON-HALIDE	D039	PK,1,4,9
30045	3	OILY SLUDGES, HIGH FREE METAL	D001, D039, D040	1,4,7,8,9
30046	3	NON-OILY CLEANOUT SLUDGES FOR ROASTING	D019, D039	PK,1,4,7,8,9
50036	4	BOX FURNACE ASH	D007, F002	PK,1,4,7,8,9
50058	7	DUST COLLECTOR BAGS	D007	PK,1,4,9
50072	1	CONTAMINATED SUMP WATER AND HYDRAULIC OIL	D001, D008, D019, D039, D040	PK,1,4,7,8,9
50085	3	WET SUMP CAKE, NON-OILY/HALIDE FROM UNKNOWN SOURCE	D001, D039, D040	PK,1,4,7,8,9
50109	3	NON-OILY OXIDATION SLUDGES WITH HIGH OR LOW FREE METAL	D004, D006, D007, D008, D010, D019, D039, D040	PK,1,2,3,4,7,8,9
50113	3	ROASTED CALCIUM-PRECIPITATED SUMP AND FILTER CAKES	F002	PK,1,4,9
50148	4	SCRAP U3O8 HIGH F	D004	PK,1,4,6,7,8,9
50165	4	ROASTED OFF-SITE SUMP CAKE	D007	4,9
50174	4	SALT SLUDGE, CHLORIDE	D007	PK,MSDS,4,6,7,8,9
50177	4	FURNACE SALT,NON CHLORIDE	D001, D004, D008	4,7,8,9
50178	4	FURNACE SALT,NON-CHLORIDE	D001	4,7,8,9
50180	4	FURNACE SALT,NON-CHLORIDE	D007, D008, D010	1,4,9
50197	4	SLUDGES FOR BLENDING	D007	PK,1,2,6,7,8,9
50200	3	OILY SLUDGE FOR OXIDATION	D001, F001	1,4,7,8,9
50339	3	SLUDGES, OILY, FOR OXIDATION, HIGH FREE METAL	D001, D019	PK,1,4,7,8,9
50364	4	U3O8, +8MESH, LOWF	D007, F001, F002	PK,4,5,9
50387	4	SALT SLUDGE, CHLORIDE	D005	PK,4,9
50408	4	FURNACE SALT NON-CHLORIDE	D008, D010	4,7,8,9
60011	7	USED FURNACE SALT (NU-SAL)	D007	PK,MSDS,1,4,5,6,9
60013	1	OFF-SPEC. PAINT	D001	PK
60019	8	NONRECOVERABLE TRASH	F002	PK,1,3,4,6,9
60027	1	CONTAMINATED SOLUBLE OIL	D001, D018	PK,MSDS,1,3,4,7,8,9
60033	2	CONTAMINATED WATER, NON-CHLORIDE	D018, D019, D021, D035, D039, D040	PK,1,2,3,4,7,8,9

TABLE C-4
RCRA REGULATED HAZARDOUS WASTE STREAMS

WASTE ID#	DOE TYPE	WASTE NAME	US EPA HAZARDOUS WASTE#	DETERMINATION BASIS
60039	1	CONTAMINATED SOLVENTS	D001, D018	PK,1,3,7,8,9
60051	1	SOLVENTS & FILTER MATERIAL	F002	PK,1,2,3,4,6,7,8,9
60056	1	USED CHLORINATED SOLVENT MIXTURE	D001, D007, D008, D009, D039, F002	PK,MSDS,1,3,7,8,9
60058	1	WASTE SOLVENT FROM BOILER PLANT	D001, D008, F002	PK,1,2,3,4,7,8,9
60059	1	USED 1,1,1 TRICHLOROETHANE MIXTURE	D001, D008, F002	PK,MSDS,1,3,8,9
60060	1	ORGANIC SOLVENT MIXTURE FROM PLANT 8 MAINTENANCE	D001, D008, D009, F002	PK,1,3,7,8,9
60063	1	USED OIL FROM PLANT2/3 MAINTENANCE	D006, D008, D009, D018, D019, D021, D035, D039, D040, F002	PK,1,4,7,8,9
60069	1	CONTAMINATED INSOLUBLE OIL	D008, F001	1,4,8,9
60070	1	CONTAMINATED LUBRICATING OIL	D018, D039	PK,MSDS,1,4,7,8,9
60072	3	SOLVENT CONTAMINATED WASTE OIL	D008, F002	PK,1,4,7,8,9
60076	1	CONTAMINATED INSOLUBLE OIL	D001, D008, D009, F002	PK,1,3,7,8,9
60078	1	USED OIL AND SOLVENTS FROM GARAGE	D001, D006, D008, F002, F005	PK,1,3,5,8,9
60080	1	CONTAMINATED INSOLUBLE OIL FROM MAINTENANCE - GENERAL	D001, D007, D008, D019, D040, F002	PK,1,3,7,8,9
60084	1	USED, CONTAMINATED MACHINE AND ENGINE OIL	D001, D008, D010, F002	PK,1,3,7,8,9
60085	1	WASTE OIL FROM PLANT 8 MAINTENACE	D001, D005, D006, D007, D008, D010, F002	1,3,4,7,8,9
60087	1	USED OIL CONTAMINATED WITH SOLVENTS	D001, D008, D039, F002	PK,1,3,8,9
60094	1	TBP/KEROSENE FROM PLANT 2/3 EXTRACTION	D008, D018, D019, D039, D040	PK,MSDS,1,4,5,7,8,9
60103	6	CONTAMINATED BURNABLE TRASH	D018, D019, D039, D040	1,4,5,6,9
60116	1	USED OIL WASTE DESTINED FOR INCINERATION AT OIL BURNER	D001, D007, D008, D018, D019, D039, D040	PK,1,2,3,4,7,8,9
60119	3	SLUDGES, OILY, FOR OXIDATION HIGH FREE METAL	D001, F001, F002	PK,1,2,4,7,8,9
60120	3	NON-OILY SEMISOLIDS	D001	PK,2,4,6,7,8,9
60122	3	PILOT PLANT TBP EXTRACTION SLUDGES	D001	PK,MSDS,1,3,4,6,7,8,9
60124	3	PAINT THINNERS AND PAINT RESIDUES	D009, D018, D035	PK,MSDS,1,4,9
60141	4	FURNACE SALT	D005	PK,MSDS,4,9
60148	4	ROTEXED U3O8 FURNACE PRODUCT	F002	PK
60193	2	PURE UNH SOLUTION	D002	PK,MSDS
60302	7	GRAPHITE	D005	PK,MSDS
60303	8	CONTAMINATED BURNABLE TRASH	D005, D039	PK,1,3,4,6,9
60304	7	CONCRETE, ROCKS, FLOOR SWEEPINGS, TRASH FROM RMI	D005	2,4,5,6,9
60306	4	HARDENED SALT BATH SLUDGE FROM RMI	D005	PK
60307	4	FURNACE SALT, SOLIDIFIED, CHLORIDE (PLANT 8 RECOVERY)	D005, D008	PK
60315	8	MISCELLANEOUS MATERIAL	D005, D009	PK,1,3,4,6,9
60329	3	SOLVENT SEMI-SOLID	D018, D019, D020, D029, D039, D040	PK,MSDS,1,2,4,6,9
61003	8	OILY RAGS, GLOVES	F002	PK,MSDS,1,2,5,6,9

See final page of keys to DETERMINATION BASIS codes and DOE WASTE STREAM TYPES

KEY TO TABLE C-4
RCRA Hazardous Waste Streams

Key to "Determination Basis" Codes:	
PK	PROCESS KNOWLEDGE
MSDS	MATERIAL SAFETY DATA SHEET
ANALYSES	
1	Total Volatile Organic
2	TCLP Volatile Organic
3	Total (TC) Metals
4	TCLP Metals
5	Visual Inspection of Waste
6	Paint Filter Liquids Test (PFLT)
7	pH
8	Flash Point
9	U-Total, %U235
10	PCBs
11	Total Semivolatile Organic
12	Total Pesticides
13	Total Thorium

Key to "DOE Waste Stream Types":	
1	Organic Liquids
2	Aqueous Liquids
3	Organic Sludges/Particulates
4	Inorganic Sludges/Particulates
5	Cemented Solids
6	Organic Debris
7	Inorganic Debris
8	Heterogeneous Debris
9	Soil with Organics
10	Soil with Inorganics
11	Soil with Organics and Inorganics
12	Labpacks with Metals
13	Labpacks without Metals
14	Reactive Metals
15	Explosives
16	Compressed Gases
17	Liquid Mercury
18	Elemental Lead
19	Beryllium Dust
20	Batteries
99	Other

SECTION D - PROCESS INFORMATION

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SECTION D - PROCESS INFORMATION

RCRA Part B Permit Application

Fernald Closure ~~Environmental Management~~ Project

Fernald, Ohio

The information provided in this section is submitted in accordance with the requirements of the Ohio Administrative Code (OAC) 3745-55-70 through 78. This information is also in accordance with Title 40 of the Code of Federal Regulations (CFR) Part 270.15-21. Other federal hazardous waste regulations addressed in this section include 40 CFR Part 264.171-175.

D-1 CONTAINERS

This section discusses the specific process information for hazardous waste container storage at the Fernald Closure ~~Environmental Management~~ Project (FCP) ~~(FEMP)~~. The units to be permitted for container storage of hazardous waste for more than ninety (90) days are:

- ~~CP Storage Warehouse - Building 56 (Butler Building)**~~
- ~~Plant 1 Pad~~
- ~~Plant 8 Warehouse - Building 80**~~
- ~~Pilot Plant Warehouse - Building 68~~
- Plant 6 Warehouse - Building 79
- Hazardous Waste Storage Lockers (9 lockers; 3 locations)

~~** CP Storage Warehouse and the Plant 8 Warehouse are not currently being used for the storage of containers of hazardous wastes. Information presented in this section will be updated as needed prior to re-initiating storage of containers of hazardous waste in these buildings.~~

Figure D-1 shows the location of each of the above storage units at the facility. The container storage information is discussed in the following paragraphs and in Table D-1.

The Materials Control and Accountability (MC&A) and Inventory Control Departments maintain surveillance over the storage, movement, measurement, and identification of nuclear materials at the FCP ~~FEMP~~. Their mission is to control and account for nuclear materials and radioactive and mixed wastes in accordance with DOE Orders and regulatory requirements, including the Resource

Conservation and Recovery Act (RCRA) and Toxic Substances Control Act (TSCA).

Materials accountability records begin with the proper identification of the material. The materials databases are organized by lot and item number to record information about the material and its location. The FCP ~~FEMP~~ lot marking system is used to assign a unique code to each item of material. Materials are grouped by material type and by enrichment class in lots consisting of one or more items. Each item within a lot is then assigned a unique item number.

The materials inventory system, which is part of the Sitewide Waste Information Forecasting and Tracking System (SWIFTS) maintains a perpetual inventory of all materials on site. Input to the MC&A system from the materials inventory system consists of the following material transactions: beginning inventory, additions, removals, adjustments, and transfer data. Source records that are generated by operations personnel are entered by Inventory Control personnel into databases.

An accurate inventory of all material in storage at the FCP ~~FEMP~~ is an important part of the material control and accountability program. The beginning inventory for a reporting period is established by bringing forward the ending physical or book inventory balances from the previous report. Materials transactions of the period are used to calculate the book inventory. A book inventory can be obtained after all transactions for the day are entered.

Generators are responsible for marking and labeling their hazardous waste containers based on guidance from ~~the~~ Waste Characterization personnel (See Section C, Waste Characteristics, for additional information). Initially this includes completing the hazardous waste label and assigning a reactivity group code (RGC). ~~The only exception to this requirement is containers of samples being staged in the Pilot Plant Warehouse (Building 68) prior to segregation under the Sample Disposition Project. RGCs will be applied to containers of hazardous waste samples after they have been segregated and/or consolidated under this project.~~ All other hazardous waste data such as RCRA classification is coordinated with ~~the~~ Waste Characterization personnel. When Waste Characterization personnel complete a RCRA characterization of a material, the new information is keyed into the database and reports are generated to trigger relabeling or movement of containers as necessary.

Inspections of individual containers in the storage areas vary depending on the RCRA disposition of the

material and the placement unit(s). Inspection forms for RCRA hazardous wastes are kept on file in the FCP's ~~FEMP 's~~ RCRA Operating Record.

D-1a Containers With Free Liquids

D-1a(1) Description of Containers

The primary containers used at the facility include but are not limited to 55-gallon and 85-gallon drums. When overpacking of 55-gallon drums is required, 85-gallon drums are typically used. Other containers that may be used at the facility and their Department of Transportation (DOT) specification are shown in Table D-2.

Generally, containers currently purchased for hazardous waste storage meet UN packaging standards or DOT-specified packaging for radioactive materials. Waste containers already in storage may not meet these standards. These containers are inspected on the same schedule as all other containers that meet these standards. At the time of shipment, the stored material is classified under DOT regulations and the container is evaluated for DOT compliance. The material is then repackaged if necessary.

All containers storing hazardous waste are inspected for corrosion and other defects such as severe rusting, apparent structural defects, leaks, holes, dents, or bulges at the time they are first used. Dents that exceed one-inch in depth or 6-inches in length in any two directions render the container non- acceptable. Bulges that exceed outward from the original surface more than one-inch shall not be acceptable. Drums shall be convex-ended in order to be acceptable. The drum lid is inspected for holes, dents, and bulges. If damage exceeding the specifications is found, the container is recorded unacceptable and the supervisor is notified of damaged containers. All containers are inspected a minimum of once per week as required by 40 CFR 264.174 after they are filled and placed in the storage unit. The inspection schedule and procedures are described in Section F, Procedures to Prevent Hazards.

A hazardous waste label or the words "hazardous waste" is applied to the container at the accumulation start date. The hazardous waste label includes the facility name and address, the EPA Identification Number, EPA hazardous waste code, the accumulation start date, and/or hazardous waste determination date. Although not required by RCRA, the facility lot number, inventory number,

drum number, and the gross, net and tare weights are also attached to the drum for internal tracking and inventory purposes. Also, a storage compatibility/Reactivity Group Code (RGC) is determined and applied to each container. ~~The only exception to this requirement is containers of samples being staged in the Pilot Plant Warehouse (Building 68) prior to segregation under the Sample Disposition Project. RGCs will be applied to containers of hazardous waste samples after they have been segregated and/or consolidated under this project.~~

D-1a(2) Container Management Practices

Various equipment is used to transport containers throughout the facility. The equipment consists of tuggers, trailers, forklifts, individual two-wheel drum dollies, riding hand-stackers, and fork-mounted drum grabs (vertical and horizontal). The fork-mounted drum grabs are used frequently to move individual drums for testing, sampling activities, and to repair leaking containers. All larger drum movements (i.e. from one unit to another or across the site) are accomplished by forklifts and the tuggers and trailers.

A container is inspected for dents, leaks, holes, corrosion or rust, bulges, and signs of leakage, and that they are closed and properly labeled while in storage. Prior to transport, the containers and the staging areas are inspected. Items checked include container condition and signs of leakage. Spill clean-up equipment is also accessible. Records for inventory control are documented and verified before movement. FCP ~~FEMP~~ procedures detail the steps taken prior to the transfer of containers. Containers moved by truck or trailer are loaded and unloaded by forklift. The containers are strapped down and transported to the storage unit, once safe conditions for movement are verified. The supervisor ~~Team Leader~~ is responsible for providing oversight and guidance and ensuring that the motor vehicle operators (MVOs) are trained to operate equipment used to transport hazardous waste. These training records are maintained in the training department. The supervisor ~~Team Leader~~ must be notified by the MVO before movement of any containers occurs.

~~Containers are elevated (e.g. placed on pallets) during storage to provide protection from possible spillage. The containers are stored with markings and labels visible and legible from the aisle. A minimum aisle spacing of 24 inches will be maintained between pallets or between containers not stored on pallets at the uncovered portions of Plant 1 Pad. A minimum aisle space of 22 inches will be maintained between pallets or between containers not stored on pallets, on the covered areas of~~

~~Plant 1 Pad (the Tension Support Structures and the hazardous waste storage lockers) and the indoor container storage areas.~~

The number of containers and hazardous waste volume for each storage unit will vary depending on the size of container used and the applicable aisle spacing and stacking height necessary to meet additional fire protection standards required on-site. The number of containers in each RCRA storage unit must not exceed the maximum storage capacity for that unit. See Table D-1 for specific information regarding maximum stacking height and maximum capacities for each storage unit.

Containers are delivered to staging areas where they are weighed, labeled/stenciled (if needed) and inspected according to FCP ~~FEMP~~ procedures to document that the containers are acceptable for storage. ~~An example Pre-Storage Container Checklist is included as Figure D-3.~~ Once the container is verified as acceptable, the container is logged into the MC&A Material Movement Record (MMR) or Container Tracking Log (CTL). The minimum information recorded in these logs include the container inventory number, serial number, original location, new location, and date of movement. Figure D-4 provides examples of these logs.

Hazardous waste types are grouped together and stored according to compatibility in accordance with Reactivity Group Codes and other appropriate information. Incompatible hazardous wastes are separated by means of a dike, berm, or other device (e.g. stored on separate spill pallets). Section F, Procedures to Prevent Hazards, provides more information on the procedures used to ensure that incompatible hazardous wastes are segregated.

~~The only exception to this requirement is containers of samples being staged in the Pilot Plant Warehouse (Building 68) prior to segregation under the Sample Disposition Project. The Pilot Plant Warehouse is being used to temporarily store these containers since many of the samples are stored in glass jars and require storage in a heated building. The samples have been overpacked into larger containers filled with packing material and/or absorbent and are primarily environmental media samples and samples from various mixed waste treatment projects. After the containers of hazardous waste samples are opened, segregated and/or consolidated, they will be repacked, labeled, and properly stored per the compatible RGCs.~~

Individual drums removed or shipped from the storage unit are documented on the MMR or the CTL. Containers remain closed except when a sample must be obtained or a visual inspection conducted as a part of the waste characterization, or during addition or removal of hazardous waste. Some containers are equipped with filtered vent plugs to prevent the build-up of pressure within the container. These vent plugs are installed to provide ventilation to containers of wastes containing free reactive uranium metal that has the potential to generate hydrogen gas. Other examples in which vent plugs may be installed include: drums containing unpunctured aerosol cans, bulging or pressurized containers, and containers of biological gas-generating waste. The filter vent plug contains a charcoal filter. The size of the filter vent plug is a maximum of two inches, and is inserted into the bung opening of the drum lid. The plugs are installed also on outer containers if the vented containers are overpacked.

D-1a(3) Secondary Containment System Design and Operation

The following RCRA storage units are designed to store hazardous waste with free liquids and provide a secondary containment system for the storage of liquids. Attachment D-1 provides information regarding floor coatings for the units. The secondary containment systems are operated according to 40 CFR 264.175 regulations and are designed to contain, at a minimum, 10 percent of the maximum storage capacity volume.

~~**Plant 1 Pad.** The Plant 1 Pad has been renovated in accordance with the Removal Action 7 Work Plan approved by the Ohio EPA on April 3, 1991, and by the U.S. EPA on August 19, 1991. The existing pad and catch basins have been upgraded in the following manner:~~

- ~~Following removal of dust, loose material and other debris, the existing pad was coated with a polyethylene surface sealant/barrier prior to installing a new layer of concrete;~~
- ~~A concrete curb was installed as shown in Figure D-6 to provide containment as well as run on and run-off control where needed;~~
- ~~New wearing surfaces were covered with 86 mils of chemically resistant polyurethane or silicon coating; and,~~
- ~~The trenches and sumps in the controlled areas were coated with an epoxy sealant.~~

~~In 2001, the containment sumps in TS-4, TS-5 and TS-6 were filled in with concrete and the adjoining trenches were sealed with an elastomeric coating.~~

~~As-built drawings for the Plant 1 Pad renovation are provided as Figures D-7 through D-15. A photograph of the Plant 1 Pad is provided as Figure D-16.~~

~~Three (3) structures (TS-4, TS-5 and TS-6) are used to provide covered storage on the Plant 1 Pad. Diked areas within the three (3) structures provide concrete curb secondary containment for storage of liquids. The location of the three (3) structures is shown in Figure D-6. The three structures are labeled Structure 1, Structure 2, and Structure 3 in the Figures D-7 through D-15. Structures 1, 2 and 3 are represented in the Section D text and in the secondary containment calculations as Tension Structure 4 (TS-4), Tension Structure 5 (TS-5) and Tension Structure 6 (TS-6), respectively. The two (2) larger structures (TS-4 and TS-5) provide 70,000 square feet of storage area. Figures D-17 and D-18 provide a drum layout of the storage capacity and secondary containment dimensions of the TS-4 and TS-5 units. The third structure (TS-6) provides 22,500 square feet of storage. Figure D-7 shows the engineering details for the covered structures. The containment for each structure includes a centrally located trench drain. These drains have no connection to site drainage systems and are intended to locally collect accumulated liquid from a leak or spill. The trench drains are sealed with a chemically resistant elastomeric coating. The concrete bases for the structures have been sealed with an 86 mil chemically resistant polyurethane wearing surface~~.

Hazardous Waste Storage Lockers. Currently, nine hazardous waste storage lockers are used for the storage of containers of hazardous waste. Seven lockers are used for the storage of containers of mixed waste: four lockers are located north of the Plant 6 Warehouse (Building 79) and three lockers are staged in an area east of the Advanced Waste Water Treatment Facility (AWWT). Two lockers, located north of the West Parking Lot, are used for the storage of containers of non-radiologically contaminated hazardous waste. ~~Currently, nine hazardous waste storage lockers are located on the Plant 1 Pad south of the tension support structures.~~ Each locker measures 28' in length by 13' in width x 8' in height. The lockers are constructed of galvanized steel with a steel grate flooring. The flooring is elevated to prevent containers from contacting spilled materials in the secondary containment area. The secondary containment is constructed of structural steel and is sealed with a chemically-resistant epoxy coating. Each locker has at least one forklift access door on each end and two on each side. Metal ramps placed at the entrances provide access to the interior. A map indicating the location of the storage lockers is provided as Figure D-1. ~~D-57.~~ Engineered design drawings of the storage lockers, including the secondary containment dimensions, are provided as

Figure D-58.

Plant 6 Warehouse (Building 79). The Plant 6 Warehouse consists of a steel framed, enclosed, metal building with an 8-inch thick, reinforced concrete slab and is equipped with a secondary containment system. This containment system includes six-inch by six-inch concrete dikes around the perimeter of the three containment units (Bays A, B, and C) as shown in the Foundation Plans and Details as provided in Figure D-41. Ramps are used to allow access to the containment areas. The building is fully sprinkled using a dry pipe sprinkler system and meets the standards for storage of ignitable liquids. The drum layout drawing for the Plant 6 Warehouse is included in Figure D-42. Figure D-43 includes the dimensions of the containment areas for the Plant 6 Warehouse.

~~**CP Storage Warehouse (Building 56).** The Warehouse is a pre-engineered building with ribbed metal siding and metal roofing. The upgrade project for the storage of wastes with free liquids in this storage unit was completed in January 1993. The upgrade project included the installation of six-inch by six-inch concrete dikes around the perimeter of the unit. A ramp allows access to the containment area. The secondary containment dimensions are detailed in Figure D-44. A drum layout is provided in Figure D-45. A photograph of the CP Storage Warehouse is provided in Figure D-46.~~

~~**Pilot Plant Warehouse (Building 68).** The Pilot Plant Warehouse is a pre-engineered metal fabricated building which is completely enclosed and covered by metal roofing. A photograph of the Pilot Plant Warehouse is provided in Figure D-47. The base of the warehouse is constructed of eight-inch thick concrete with wire mesh fabric reinforcement as indicated in Figure D-48.~~

~~The hazardous waste storage area measures 25 feet by 35 feet and is located in the southwest corner of the building. The containment system consists of Herculite sheeting which extends up and over a dike constructed of four-inch PVC piping. All seams in the dike have been sealed using an adhesive to provide a barrier to contain spills of hazardous waste. A layout drawing of the Pilot Plant Warehouse which includes the secondary containment dimensions is provided as Figure D-49.~~

~~**Plant 8 Warehouse (Building 80).** The Plant 8 Warehouse is a steel-framed, enclosed, metal building. The base of the unit is constructed of eight inch thick concrete with number 4 reinforcement rods at twelve inch intervals as shown in Figure D-53. The secondary containment dike is constructed of a~~

~~four inch by six inch steel angle iron frame dike. Steel ramps have been constructed to allow access to the containment area. The building is fully sprinklered using a dry pipe sprinkler system and meets the standards for storage of ignitable liquids. Figure D-55 provides the secondary containment dimensions. A drum layout is provided as Figure D-56. A photograph of the Plant 8 Warehouse is provided as Figure D-52.~~

D-1a(3)(a) Requirement for the Base to Contain Liquids

The concrete floor of the Plant 6 Warehouse (Building 79) is ~~floors of the following storage units are~~ inspected for cracks and gaps weekly. The inspector checks the building~~/pad~~ for any structural failure of the floor ~~pad~~ surface and curbing. ~~The surrounding area is checked for signs of a release such as pooled liquids.~~ The condition of the secondary containment in the Hazardous Waste Storage Lockers and Plant 6 Warehouse (Building 79) is checked to ensure that all portions of the system are sealed, and free of any cracks or gaps. ~~All drainage features including sumps, drains, and troughs are inspected to ensure there are no standing liquids.~~ Standing liquids from a release of hazardous waste must be removed within one working day from discovery and the area re-inspected to ensure compliance. Any cracks or gaps identified will be noted on the inspection checklist. A Maintenance Work Order is written for the repair of the crack or gap. The inspector will re-inspect the area and note the conditions until the gap or crack is repaired.

~~**Plant 1 Pad.** Under the approved Removal Action 7 Work Plan as explained in D-1a(3) above, the base, catch basins, and sumps in the covered structures of the Plant 1 Pad were covered with a chemically resistant coating. The coating applied to the base of each of the structures is a polyurethane called Auto-gard II. Attachment D-1 provides information on the coating. The coating is compatible with, and impervious to, the hazardous wastes stored at the Plant 1 Pad. In 2001, the containment sumps in TS-4, TS-5 and TS-6 were filled in with concrete and the adjoining trenches were sealed with an elastomeric coating. A twelve (12) inch concrete curb has been constructed around the perimeter of each secondary containment area for TS-4 and TS-5 and the TS-6 secondary containment area. TS-4 and TS-5 have two secondary containment areas designated as North and South within each structure. TS-6 has one secondary containment area within the structure.~~

Hazardous Waste Storage Lockers. The secondary containment area in each of the hazardous waste storage lockers is coated with a chemically resistant epoxy sealant, Amershield, to provide an

impermeable surface. Attachment D-1 provides information regarding the coating system, including chemical resistance data.

Plant 6 Warehouse (Building 79). The floor and curbs are coated with a chemically resistant coating to create an impermeable surface. The base of the Plant 6 Warehouse was re-coated with Surtreat during December 1992. Attachment D-1 provides information regarding the coating system, including chemical resistance data.

~~**CP Storage Warehouse (Building 56)**. The base of the unit is constructed of six inch thick concrete with 6-6-6/6 wire fabric reinforcement as shown in Figure D-51. The base and the curbs of the CP Storage Warehouse were coated with Vulkem between October 1992 and January 1993. The vendor's specifications for Vulkem are provided in Attachment D-1.~~

~~**Pilot Plant Warehouse (Building 68)**. The diking for the hazardous waste storage area is constructed of four inch PVC piping with slip-fitted joints. The Herculite sheeting is rolled over the pipe frame to form the containment dike. All seams have been sealed using an adhesive to create a barrier to contain spills of hazardous waste.~~

~~**Plant 8 Warehouse (Building 80)**. The floor and curbs are coated with a chemically resistant coating to create an impermeable surface. The base of the Plant 8 Warehouse was re-coated with Surtreat in December 1996. Attachment D-1 provides information regarding the coating system, including chemical resistance data.~~

D-1a(3)(b) Containment System Drainage - Hazardous Waste Storage Lockers~~, Plant 1 Pad~~. Precipitation will~~, for the most part,~~ not affect hazardous waste containers in the ~~tension support structures and the~~ hazardous waste storage lockers because they are enclosed structures. ~~The floors in the tension support structures are sloped toward trench drains which are isolated from the site stormwater and wastewater systems and are intended to collect any released hazardous waste and rinseate in the event of a leak or spill.~~ The floor of the storage lockers is grated and is elevated to prevent containers from contacting spilled materials in the secondary containment area. The floor grating is removable to allow access to the secondary containment area for clean up in the event of a spill. ~~Containers stored at the Plant 1 Pad are also elevated (e.g. placed on pallets) during storage to~~

~~eliminate the potential of spilled liquids coming into contact with the containers.~~

Plant 6 Warehouse (Building 79). Containers stored in the Plant 6 Warehouse are elevated on pallets during storage to eliminate the potential of spilled liquids coming into contact with the containers. The accumulated liquid is contained within the secondary containment system until the material is removed as described in Section D-1(a)(3)(e). Precipitation is not a factor since the storage unit is completely enclosed.

~~CP Storage Warehouse (Building 56). The CP Storage Warehouse is a completely enclosed structure, thus precipitation is not a factor. Containers are elevated on pallets during storage. Any accumulated liquids would be contained in the secondary containment system until removed as described in Section D-1a(3)(e).~~

~~Pilot Plant Warehouse (Building 68). The Pilot Plant Warehouse is a pre-engineered metal fabricated building which is completely enclosed and covered by metal roofing, thus precipitation is not a factor. Any liquids would accumulate in the temporary secondary containment system until the material is removed as described in D-1a(3)(e).~~

~~Plant 8 Warehouse (Building 80). Containers stored in the Plant 8 Warehouse are placed on pallets during storage to eliminate the potential of spilled liquids coming into contact with the containers. The accumulated liquid is contained within the secondary containment system until the material is removed as described in Section D-1a(3)(e). Precipitation is not a factor since the storage unit is completely enclosed.~~

D-1a(3)(c) Containment System Capacity

~~Containers stored in the following warehouses are elevated (e.g. placed on pallets) to prevent them from sitting in accumulated liquids in the event of a leak or spill. All pallets used are at least 6 inches high and provide sufficient height to protect the container if the secondary capacity is reached.~~

~~Secondary containment calculations for each of the areas storing containers of hazardous waste with free liquids are provided in Attachment D-2.~~

~~Plant 1 Pad. The as-built drawings for the Plant 1 Pad renovation are provided as Figures D-7 through D-15. The location of the three covered storage areas is shown in Figure D-6. The construction drawing for the Plant 1 Pad covered structures is provided as Figure D-7. TS-4 and TS-5 are divided into containment areas shown in Figures D-17 and D-18. Each containment area is 220 feet X 80 feet with a twelve (12) inch concrete dike constructed around the perimeter. The maximum storage capacity for TS-4 is 653,840 gallons (11,888 55-gallon drum equivalents) and 657,360 gallons (12,052 55-gallon drum equivalents) for TS-5. The secondary containment system is capable of holding at least 10 percent of the maximum hazardous waste storage volume for the area. The capacity of the secondary containment areas in TS-4 is 65,381 gallons for the North Bay and 64,140 gallons for the South Bay. The secondary containment capacity for the North Bay in TS-5 is 63,287 gallons and 64,731 gallons for the South Bay. The containment calculations are provided in Attachment D-2.~~

~~TS-6 is constructed similar to TS-4 and TS-5, but with a single containment area. The containment area is 22,500 ft2 with a twelve (12) inch concrete dike constructed around the perimeter. Its maximum storage capacity is 330,000 gallons (6,000 55-gallon drum equivalents). The containment system capacity is capable of holding at least 10 percent of the maximum hazardous waste storage volume of the area. The capacity of the secondary containment area in TS-6 is about 82,511 gallons.~~

Hazardous Waste Storage Lockers. The maximum storage capacity for each of the hazardous waste storage lockers is 2,640 gallons (48 55-gallon drums). The secondary containment capacity is 1,291 gallons which is greater than 10% of the maximum storage capacity for the unit. Secondary containment calculations for the lockers are provided in Attachment D-2.

Plant 6 Warehouse (Building 79). Hazardous waste containers stored in the Plant 6 Warehouse storage bays are elevated (e.g. placed on pallets) during storage. The storage and containment capacities for each bay of the Plant 6 Warehouse storage unit are discussed separately below. The secondary containment capacity calculations are provided in Attachment D-2.

- Bay A - The maximum storage capacity for Bay A is 82,060 gallons (1,492 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 1,097 ft^3. The secondary containment capacity is 1,928 ft^3.

- Bay B - The maximum storage capacity for Bay B is 79,640 gallons (1,448 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 1,064 ft^3. The secondary containment capacity is 2,061 ft^3.
- Bay C - The maximum storage capacity for Bay C is 69,080 gallons (1,256 55-gallon drum equivalents). A minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 923 ft^3. The secondary containment capacity is 1,940 ft^3.

~~**CP Storage Warehouse (Building 56).** Containers of hazardous waste stored in the CP Storage Warehouse are elevated (placed on pallets) during storage. The maximum storage capacity is 116,160 gallons (2,112 55-gallon drum equivalents). The minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 1,552 ft^3. The secondary containment capacity is 3,499 ft^3.~~

~~**Pilot Plant Warehouse (Building 68).** Containers of hazardous waste stored in the Pilot Plant Warehouse are elevated (e.g. placed on pallets) during storage. The maximum storage capacity of the warehouse storage area is 16,500 gallons (300 55-gallon drum equivalents). The minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 215 ft^3. The secondary containment capacity is 260 ft^3.~~

~~**Plant 8 Warehouse (Building 80).** Containers of hazardous waste stored in the Plant 8 Warehouse are elevated (e.g. placed on pallets) during storage. The maximum storage capacity is 139,260 gallons (2,532 55-gallon drum equivalents). The minimum containment capacity must equal or exceed 10 percent of the maximum storage volume or 1,862 ft^3. The secondary containment capacity is 3,808 ft^3.~~

D-1a(3)(d) Control of Run-On ~~**Plant 1 Pad.** The covered structures (tension support structures and hazardous waste storage lockers) provide run-on control for the storage of containers with free liquids. The tension support structures are constructed upon a 12-inch concrete dike to prevent run-on from entering the storage areas. Precipitation is prevented from entering the tension support structures and the hazardous waste storage lockers since these areas are completely covered and enclosed on all sides.~~

Hazardous Waste Storage Lockers. Precipitation is prevented from entering the hazardous waste storage lockers since these units are completely covered and enclosed on all sides.

Plant 6 Warehouse (Building 79). Precipitation is prevented from entering the storage unit since this area is completely covered and enclosed on all sides. To further prevent run-on, the topography around the warehouse is sloped away from the building.

~~**CP Storage Warehouse (Building 56).** The storage unit is a pre-engineered, ribbed building covered by metal roofing as shown in Figure D-46. The topography around the building is sloped away from the building to prevent run-on and a ramp is used to access the building.~~

~~**Pilot Plant Warehouse (Building 68).** The storage area is confined to the southwest corner of an entirely covered and enclosed structure which prevents precipitation from entering the storage unit.~~

~~**Plant 8 Warehouse (Building 80).** Precipitation is prevented from entering the Plant 8 Warehouse since this area is completely covered and enclosed on all sides. The area around the warehouse is sloped away from the building to further prevent run-on.~~

D-1a(3)(e) Removal of Liquids from Containment System

Spills and leaks are contained within the diked containment area. Spills and leaks are remediated as follows:

Containers of hazardous waste found to be leaking will be controlled upon discovery. Absorbent "pigs", or equivalent, are used to contain and/or absorb the spilled material within the immediate area. The characteristics of the spilled material are established from the container identification if possible. The spill may then be cleaned up by absorption. If an acid or a base, a neutralizing agent is used as necessary to reduce or eliminate the hazardous properties of the spill before absorption. Saturated sorbent material is placed in a compatible container for proper disposal. A pumping system may be used to remove larger spills. Spilled material will be pumped out of the secondary containment system within one working day from discovery of the incident.

If spilled material is not identifiable, samples are analyzed for hazardous characteristics in accordance with Section C, Waste Characteristics. The container is properly labeled. Storage and disposal is performed in accordance with applicable regulatory requirements. Equipment and materials used are decontaminated or disposed of properly.

In addition, Section 3.8 (c) of the Stipulated Amendment to the Consent Decree states the following regarding spill response:

> "For any drums that are actually leaking in such a manner as to allow wastes to be released onto the pad, DOE shall immediately contain the release or spill and shall manage the drum in accordance with OAC 3745-66-71 as soon as possible after detection, but in no event more than 24 hours after discovery."

Note that safety basis controls and safe container handling practices (e.g. for gas-generating wastes or enriched restricted materials) will not be compromised. A safety issue would be the only reason that compliance with this requirement would be delayed, and in that case, notification would be made to management and the action plan documented. Additional information regarding responses to leaking/deteriorated containers is found in Section G-4i (Container Spills and Leakage) in the FCP's ~~FEMP's~~ Contingency Plan.

D-1b Containers Without Free Liquids

The ~~Plant 1 Pad Tension Support Structures and the~~ hazardous waste storage lockers and the Plant 6 Warehouse are designed to store hazardous waste with or without free liquids. ~~The other areas of the Plant 1 Pad provide storage for hazardous waste without free liquids. Also, the Plant 6 Warehouse, the Plant 9 Warehouse, the CP Storage Warehouse, the Plant 8 Warehouse and the Pilot Plant Warehouse are designed for the storage of hazardous waste with and without free liquids.~~

D-1b(1) Test for Free Liquids

The chemical and physical characteristics of the hazardous waste placed in the storage units are determined by visual inspection, specific material data, documented criteria, and/or process knowledge. The visual inspection includes checking the container contents visually for any free standing liquids. The waste characterization process is described further in Section C, Waste Characteristics.

D-1b(2) Description of Containers

The hazardous waste container storage areas accept and store wastes in containers meeting RCRA specifications as delineated in OAC 3745-55-71 and 40 CFR Parts 264.171 and 264.172. A thorough description of containers is presented in D-1a(1).

D-1b(3) Container Management Practices

A thorough description of container management practices on-site is presented in D-1a(2).

D-1b(4) Container Storage Area Drainage

~~The containers in each of the following RCRA storage units are elevated (e.g. placed on pallets) during storage to eliminate the potential of spilled liquids coming into contact with the containers.~~

~~**Plant 1 Pad.** The base of the Plant 1 Pad is sloped toward catch basins to remove precipitation. The Plant 1 Pad drainage is shown in Figure D-15. The catch basins (manholes) in the uncovered areas of Plant 1 Pad are connected to the stormwater management system. The covered structures are equipped with dedicated trench drains.~~

Hazardous Waste Storage Lockers. The floor of the hazardous waste storage lockers is grated and is elevated to prevent containers from coming into contact with the spilled material.

~~**CP Storage Warehouse (Building 56).** The CP Storage Warehouse is a completely enclosed structure. Therefore, precipitation cannot enter this building. The topography around the storage unit slopes away from the building to prevent run-on. Containers stored in the CP Storage Warehouse are elevated to prevent contact with any accumulated liquids.~~

~~**Plant 8 Warehouse (Building 80).** A photograph of the Plant 8 Warehouse is provided as Figure D-52. Figure D-53 shows the plan view of the Plant 8 Warehouse with construction details. The base of the unit is constructed of eight inch thick concrete with number 4 reinforcement rods at twelve inch intervals. Since the Plant 8 Warehouse is a completely enclosed structure, run-on and precipitation is not a concern.~~

~~**Pilot Plant Warehouse (Building 68).** The Pilot Plant Warehouse is a pre-engineered metal fabricated~~

~~building which is completely enclosed and covered by metal roofing. Thus, precipitation and run-on is not a factor.~~

~~The hazardous waste storage area measures 25 feet by 35 feet and is located in the southwest corner of the building. The storage area consists of Herculite sheeting which extends up and over a dike constructed of four inch PVC piping. All seams have been sealed with an adhesive to provide a barrier to contain spills of hazardous waste with and without free liquids. A layout drawing of the Pilot Plant Warehouse is provided as Figure D-49.~~

Plant 6 Warehouse (Building 79). The Plant 6 Warehouse is a pre-engineered, ribbed, unheated building covered by metal roofing. Since this unit is completely enclosed, precipitation is not a factor. A photograph of the Plant 6 Warehouse is provided as Figure D-54. The storage unit is divided into three (3) diked bays with access ramps provided for access to the enclosed areas as shown in Figure D-41. As indicated, the base is constructed of eight-inch concrete with number 4 reinforcement rods at 12 inch intervals. Containers stored in the Plant 6 Warehouse are elevated (e.g. placed on pallets) during storage to eliminate the potential of spilled liquids coming into contact with the containers.

D-1c Containers of Uncharacterized/Newly Characterized Waste

Containers of wastes undergoing characterization are stored on the best available hard surface in accordance with Section 3.5.1(f) of the Stipulated Amendment to the Consent Decree (SACD). ~~The primary storage areas for these wastes will be the Plant 1 Pad, Plant 6 Warehouse (Building 79) and the Pilot Plant Warehouse (Building 68). The storage configurations for these containers (i.e. aisle spacing and stacking height) will conform to the requirements in the Part B Permit Application for the operation of these three units. In accordance with Section 3.8(b) of the SACD, daily leakage inspections will be conducted of containers of uncharacterized waste stored on the uncovered portions of Plant 1 Pad until they have been removed from these areas of the pad or have been determined not to contain hazardous or mixed waste.~~ Containers of uncharacterized waste stored in covered areas (e.g. Plant 6 Warehouse (Building 79)~~, Tension Support Structures~~) will be inspected on a weekly basis.

In the event that containers of uncharacterized waste are stored in an area that is not identified as a Hazardous Waste Management Unit in the FCP's ~~FEMP's~~ RCRA Part A Permit Application, the FCP

~~FEMP~~ shall, as soon as reasonably possible but in no event more than sixty days from a determination that any drummed materials are hazardous or mixed waste, move such material to units that are identified in the FCP's ~~FEMP's~~ RCRA Part A Permit Application. If storage space which meets RCRA requirements is not available, DOE shall store such wastes in a manner as protective of human health and the environment as possible, shall perform daily leakage inspections on all such containers that are not located under cover and shall, within sixty days of a determination that sufficient hazardous waste storage space is not available, submit a plan and schedule for Ohio EPA approval for short-term storage of such wastes. The FCP ~~FEMP~~ shall perform weekly inspections in accordance with 40 CFR 265.15 and 265.174 and OAC 3745-65-15 and 3745-66-74 on all such containers of hazardous/mixed waste.

D-2 TANKS SYSTEMS

The FCP ~~FEMP~~ is not seeking a permit for a tank or tank systems, therefore, this section is not applicable.

D-3 WASTE PILES

The FCP ~~FEMP~~ is not seeking a permit for a waste pile, therefore, this section is not applicable.

D-4 SURFACE IMPOUNDMENTS

The FCP ~~FEMP~~ is not seeking a permit for a surface impoundment, therefore, this section is not applicable.

D-5 INCINERATORS

The FCP ~~FEMP~~ is not seeking a permit for an incinerator, therefore, this section is not applicable.

D-6 LANDFILLS

The FCP ~~FEMP~~ is not seeking a permit for a landfill, therefore, this section is not applicable.

D-7 LAND TREATMENT

The FCP ~~FEMP~~ is not seeking a permit for a land treatment unit, therefore, this section is not applicable.

D-8 MISCELLANEOUS UNITS

The FCP ~~FEMP~~ is not seeking a permit for a miscellaneous unit, therefore, this section is not applicable.

D-9 SUBPART AA

The facility has no process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction or air or steam stripping managing hazardous wastes with organic concentrations at least 10 parts per million (ppm). Therefore, the facility is not subject to the requirements of this subpart.

D-10 SUBPART BB

The facility has no equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight that are managed in:

- Units that are subject to the permitting requirements of 40 CFR Part 270, or
- Hazardous waste recycling units that are located at hazardous waste management facilities otherwise subject to the permitting requirements of 40 CFR Part 270.

Therefore, the facility is not subject to the requirements of this subpart.

D-11 SUBPART CC

Subpart CC air emission standards require facilities to control emissions of volatile organic compounds (VOC) from containers if the hazardous waste in these containers contains an average VOC concentration of greater than or equal to 500 parts per million by weight. Subpart CC emissions standards do not apply to:

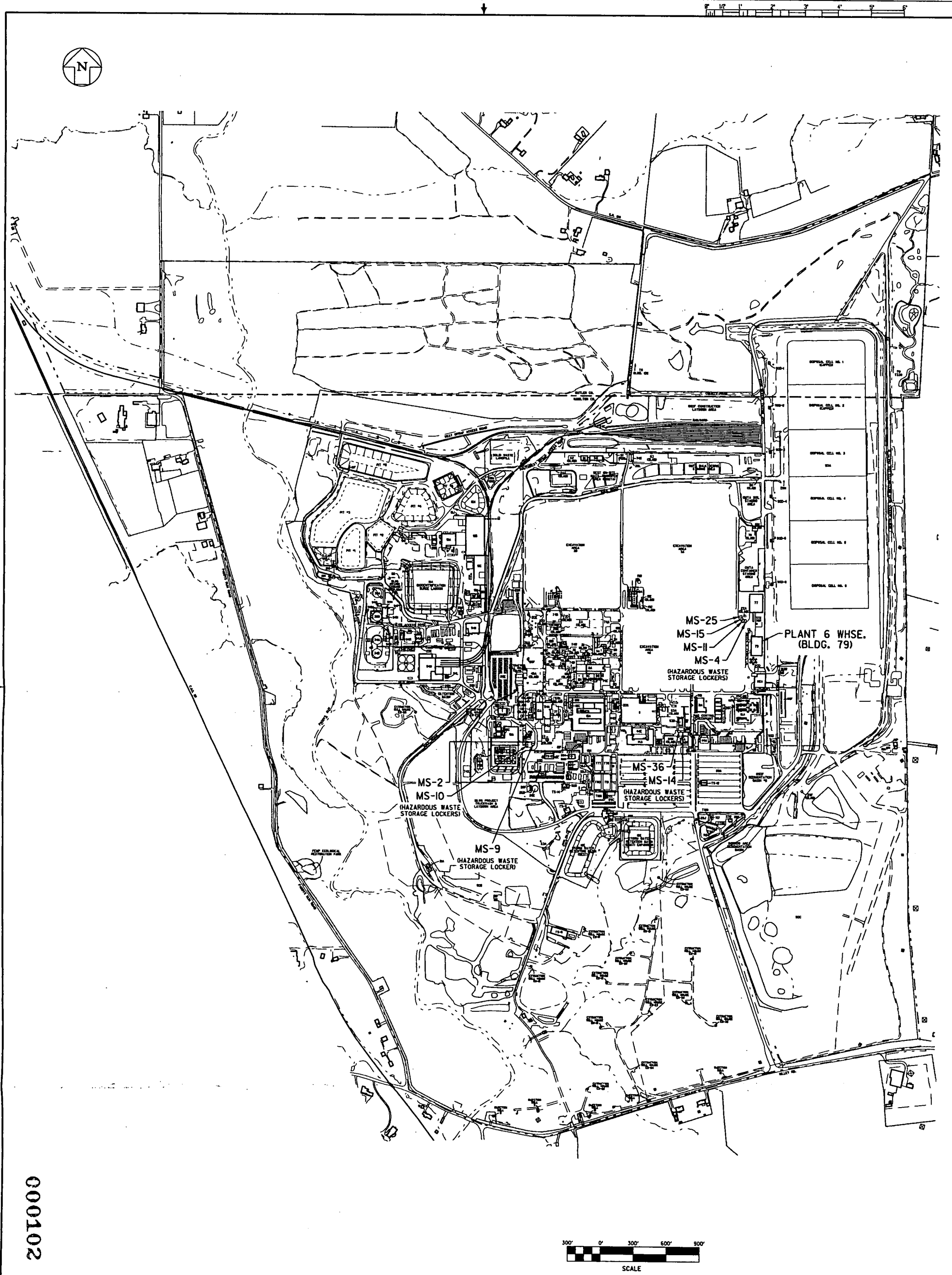
- A waste management unit that holds hazardous waste placed in the unit before December 6, 1996, and in which no hazardous waste is added to the unit on or after December 6, 1996.

- A waste management unit that is used solely for on-site storage of hazardous waste that is placed in the unit as a result of implementing remedial activities required under CERCLA authorities.

- A waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act.

- A container that has a design capacity less than or equal to 0.1 m^3.

If a FCP ~~FEMP~~ hazardous waste container does not meet one of the Subpart CC exemptions, it will be managed in accordance with the applicable Subpart CC container level standard. If a DOT container is used to meet these standards, no additional testing, inspection, or monitoring requirements apply (59 FR 62899; December 6, 1994).



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NO.	REVISIONS	DATE	DWN. BY	APPD.	REF. DWG. NO.

FDPSV.DGN 8/30/03

FLUOR FERNALD CADD DRAWING, DO NOT REVISE MANUALLY.

CONFIGURATION MANAGEMENT DRAWING

COGNIZANT ENGINEER DATE

APPROVALS			
CIVIL & STR.		SAFETY ENG.	
ELECTRICAL		MAINTENANCE	
ENGINEER		FIRE PROTECT.	
INSTRUMENT		WASTE MANAGE	
MECHANICAL		SECURITY	
		PROJECTS	
CHECKED			
APPROVED			

Fernald Closure Project

FLUOR FERNALD, INC.

U.S. DEPARTMENT OF ENERGY

SITE PLAN RCRA PART B

PERMITTED RCRA STORAGE UNITS

FIGURE D-1

SCALE: 1" = 300'-0"

DATE 1/6/04

DRAWN S.J.SMOCK

FILE NAME: /RES3053/DI2004.DGN

d12004 CADD10 smoc7314 Thursday January 08 2004 10:09:11 AM EST

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SECTION D – PROCESS INFORMATION
RCRA STORAGE UNITS

TABLE D-1

RCRA STORAGE UNIT		MAXIMUM CAPACITY IN GALLONS	WITH FREE LIQUIDS OR WITHOUT FREE LIQUIDS	STORAGE OF IGNITABLE LIQUIDS	STACKING HEIGHT (55-GAL. Drum)	AISLE SPACING
~~1.~~	~~CP Storage Warehouse – Bldg. 56~~	~~116,160~~	~~With or Without free liquids~~	~~Yes~~	~~Three High~~	~~Minimum of 22 inches~~
~~2.~~	~~Plant 1 Pad~~	~~11,222,200 Total~~	~~With or Without free liquids~~	~~No~~	~~Four High~~	~~Minimum of 24 inches~~
	~~TS-4~~	~~653,840~~	~~With or Without free liquids~~	~~No~~	~~Four High~~	~~Minimum of 24 inches~~
	~~TS-5~~	~~657,360~~	~~With or Without free liquids~~	~~No~~	~~Four High~~	~~Minimum of 24 inches~~
	~~TS-6~~	~~330,000~~	~~With or Without free liquids~~	~~No~~	~~Four High~~	~~Minimum of 24 inches~~
1.	Hazardous Waste Storage Lockers	2,640 (per locker)	With or Without free liquids	Yes	No Stacking	Minimum of 22 inches
	~~Area Outside of Structures~~	~~9,578,360~~	~~Without free liquids~~	~~No~~	~~Four High~~	~~Minimum of 24 inches~~
~~3.~~	~~Plant 8 Warehouse – Bldg. 80~~	~~139,260~~	~~With or Without free liquids~~	~~No~~	~~Four High (Two High when storing ignitables)~~	~~Minimum of 22 inches~~
~~4.~~	~~Pilot Plant Warehouse – Bldg. 68~~	~~16,500~~	~~With or Without free liquids (samples only)~~	~~Yes~~	~~Three High~~	~~Minimum of 22 inches~~

SECTION D – PROCESS INFORMATION
RCRA STORAGE UNITS

TABLE D-1

RCRA STORAGE UNIT		MAXIMUM CAPACITY IN GALLONS	WITH FREE LIQUIDS OR WITHOUT FREE LIQUIDS	STORAGE OF IGNITABLE LIQUIDS	STACKING HEIGHT (55-GAL. Drum)	AISLE SPACING
2.	Plant 6 Warehouse – Bldg. 79	230,780	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches
	Bay A	82,060	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches
	Bay B	79,640	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches
	Bay C	69,080	With or Without free liquids	Yes	Four High (Two High when storing ignitables)	Minimum of 22 inches

SECTION D - PROCESS INFORMATION

ATTACHMENT D-1

RCRA STORAGE UNIT	FLOOR COATING
~~1. Building 56 (CP Storage Warehouse)~~	~~Vulkem~~
~~2. Pilot Plant Warehouse (Building 68)~~	~~Herculite Sheeting~~
1. Building 79 (Plant 6)	Surtreat
~~4. Plant 1 Pad:~~ ~~TS-4, TS-5, TS-6~~ ~~TS-4, TS-5, TS-6 trench drains~~	~~Auto-gard II~~ ~~Fluorolast~~
2. Hazardous Waste Storage Lockers	Amershield
~~5. Building 80 (Plant 8)~~	~~Surtreat~~

SECTION F - PROCEDURES TO PREVENT HAZARDS

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LIST OF ATTACHMENTS

SECTION F - PROCEDURES TO PREVENT HAZARDS

RCRA Part B Permit Application

Fernald Closure ~~Environmental Management~~ Project

Fernald, Ohio

The information provided in this section is submitted in accordance with the requirements of the Ohio Administrative Code (OAC) 3745-50-44(A)(4) and Title 40 of the Code of Federal Regulations (CFR) Part 270.14(b)(4). Other regulations addressed to complete this section include OAC 3745-54-14, 3745-54-15, 3745-54-17, 3745-54-32, 3745-54-35, 3745-55-74, and 3745-55-76 (40 CFR 264.14, 264.15, 264.17, 264.32, 264.35, 264.174, and 264.176).

The FCP ~~FEMP~~ is not required to comply with Federal and Ohio hazardous waste laws and hazardous waste regulations, with regard to mixed waste, where compliance will increase the risk to human safety and health or the environment, as stated in Section 3.1 of the Consent Decree and its Stipulated Amendment. In these circumstances the FCP ~~FEMP~~ will, in consultation with the Ohio EPA, handle the hazardous or mixed waste in a manner protective of human health and safety and the environment as if the hazardous waste requirement had been applied.

F-1 SECURITY

F-1a Security Procedures and Equipment

General security at the Fernald Closure ~~Environmental Management~~ Project (FCP) ~~(FEMP)~~ is provided by fencing, gates, and security officers as discussed in Section F-1a(1). The following features also contribute to the safety and security of the hazardous waste storage buildings and the entire facility:

- Ample lighting is provided throughout the site.
- Communication devices are available for personnel accessing these units, for emergency notification purposes.

- Employees and contractors are required to show identification badges when reporting for work. Visitors must complete an access request form when entering the site. The request form must be signed by an authorized manager.

F-1a(1) 24-Hour Surveillance System

The FCP ~~FEMP~~ is under 24 hour surveillance by security officers on mobile and foot patrols. Entry into the facility is monitored through three access points: the South Access Control Point located on the south access road, Post 2 located near the east entrance to the east parking lot and Post 4 located off of Route 126 which permits access to railyard and On-Site Disposal Facility (OSDF) operations. The South Access Control Point serves as the site's primary access point and is manned 24 hours a day.

F-1a(2) Barrier and Means to Control Entry

F-1a(2)(a) Barrier

The former FCP ~~FEMP~~ production area, which includes the active hazardous waste management areas, is surrounded by a physical barrier and monitored 24 hours a day by security. Two of the hazardous waste storage lockers are located outside of the former production area – these lockers are locked when they are being used for hazardous waste storage.

The facility's vehicular access points to the former production area are through the Building 82 (former RIMIA) entrance located at the east side of the facility, and T-50, a radiological control access point located at the south entrance of the production facility.

The security check point at the South Access Control Point at the south entrance is manned 24 hours a day to control access. All other access points are manned from 0530 until 1800 (except during construction season) to allow project-required ingress and egress of employees. At the conclusion of daily operations, access points are secured and the corresponding gates are locked.

F-1a(2)(b) Means to Control Entry

The vehicular entrance points to the former production area of the facility are the Building 82 (former RIMIA) entrance, and T-50 located at the south entrance of the production facility, as discussed in Section F-1a(2)(a). The Building 82 ~~RIMIA~~ entry is controlled by a Radiological Technician 10 hours a day. T-50 is a radiological control access point for vehicular access.

Personnel access is controlled during ingress/egress as dictated by project working hours. Employees and contractors are required to present an identification badge when reporting to work. Visitors must sign an access sheet and obtain a visitor's pass. Visitors are permitted to enter the former production area only if escorted by facility personnel. These practices restrict unauthorized visitors from entering the main facility.~~, and consequently the active RCRA storage areas.~~

F-1a(3) Warning Signs

Signs legible from a distance of 25 feet are posted at the entrance(s) to the individual hazardous waste storage units within the facility.

The signs state:

"Danger -- Authorized Personnel Only"

No languages other than English are necessary for the signs at this facility.

Additional signs are posted on the entrances and/or gates into the former production area of the facility.

F-1b Waiver

A waiver of the security procedures and equipment requirements is not requested by the FCP ~~FEMP~~ at this time, therefore this section is not applicable.

F-2 INSPECTION SCHEDULE

The information provided in this section is submitted in accordance with the requirements of OAC 3745-50-44(A)(5) and 3745-54-14 and 40 CFR 270.14(b)(5) and 264.15.

The FCP ~~FEMP~~ is not required to comply with Federal and Ohio hazardous waste laws and hazardous waste regulations, with regard to mixed waste, where compliance will increase the risk to human safety and health or the environment, as stated in Section 3.1 of the Consent Decree and its Stipulated Amendment. In these circumstances the FCP ~~FEMP~~ will, in consultation with the Ohio EPA, handle the hazardous or mixed waste in a manner protective of human health and safety and the environment as if the hazardous waste requirement had been applied.

F-2a General Inspection Requirements

In addition to inspection of the RCRA storage units, the FCP ~~FEMP~~ conducts inspections of safety and emergency equipment, operating equipment, and general conditions of the structures. An informational example of the current FCP ~~FEMP~~ Inspection Schedule is provided as Attachment F-1. The Inspection Schedule is updated as needed and maintained in the FCP's ~~FEMP's~~ RCRA Operating Record.

Deteriorations or malfunctions revealed by the inspection are remedied as soon as possible. Where a hazard is imminent, or has already occurred, remedial action is taken immediately. If the hazard involving hazardous waste is declared to be an "Operational Emergency", as defined in the Contingency Plan, Section G of this permit application, the contingency plan is implemented.

Inspections are documented by recording results on inspection forms. The completed inspection forms are maintained for a minimum of three years from the date of inspection. Examples of the inspection forms currently in use are provided in Attachment F-2. The inspection forms are updated as needed and maintained in the FCP's ~~FEMP's~~ RCRA Operating Record.

F-2a(1) Types of Problems

Types of problems that may be encountered during inspections are listed on the Facility Inspection Schedule provided as an example in Attachment F-1. Generally, the inspection verifies the adequacy of emergency equipment and the operating condition of the facility as identified on the inspection schedule.

F-2a(2) Frequency of Inspections

The frequency of inspections at the FCP ~~FEMP~~ is based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if deterioration goes undetected between inspections. The frequency of inspections at the FCP ~~FEMP~~ conforms to accepted industry practices, RCRA guidance information and the Consent Decree and its Stipulated Amendment. The frequency of inspection for each item can be found on the Facility Inspection Schedule (example provided as Attachment F-1).

The emergency and personnel protection equipment discussed in Section F-3 is inspected weekly. Inspection of the hazardous waste storage units takes place weekly.

F-2b Specific Process Inspection Requirements

F-2b(1) Container and Storage Area Inspections ~~Inspection Storage Area Inspections~~

The container storage areas are inspected weekly as per the Facility Inspection Schedule (Attachment F-1). Each storage area is inspected for proper aisle spacing, stacking, pallet condition, evidence of leaks or spills and condition of the floor and dikes. Containers of hazardous waste are inspected weekly for evidence of damage or deterioration, and container labels. The inspector immediately reports to the supervisor if a hazardous waste release is observed.

Completed inspection forms for the RCRA Storage Areas are maintained in the FCP's ~~FEMP~~'s RCRA Operating Record. Examples of RCRA Container Storage Area Inspection Forms are provided in Attachment F-2 and are subject to change.

~~Container Inspection~~

~~Containers of hazardous waste stored in covered storage areas (e.g. Plant 6 Warehouse, Tension Support Structures) are inspected weekly for evidence of damage or deterioration, and container labels. As required by Section 3.8(b) of the SACD, the FEMP also conducts daily leakage inspections of containers of uncharacterized and hazardous waste stored on the uncovered portions of Plant 1 Pad and performs weekly inspections in accordance with OAC 3745-65-15 and 3745-66-74 and 40 CFR 265.15 and 265.174. The FEMP has received approval from Ohio EPA to conduct weekly (rather than daily) leakage inspections for containers of thorium mixed waste stored on Plant 1 Pad due to the protective manner in which these wastes are being stored (multiple overpacks, no free liquids).~~

~~Examples of the RCRA Container Storage Area Inspection Forms are provided in Attachment F-2.~~

F-2b(2) Tank System Inspection

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste tank.

F-2b(3) Waste Pile Inspection

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste pile.

F-2b(4) Surface Impoundment Inspection

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste surface impoundment.

F-2b(5) Incinerator Inspection

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste incinerator.

F-2b(6) Landfill Inspection

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste landfill.

F-2b(7) Land Treatment Facility Inspection

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste land treatment facility.

F-2b(8) Miscellaneous Unit Inspection

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a miscellaneous hazardous waste unit.

F-2b(9) Subpart AA Inspection

The FCP ~~FEMP~~ has no process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction or air or steam stripping managing hazardous wastes with organic concentrations at least 10 parts per million (ppm). Therefore the FCP ~~FEMP~~ is not subject to the requirements of this subpart.

F-2b(10) Subpart BB Inspection

The FCP ~~FEMP~~ has no equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight that are managed in:

- Units that are subject to the permitting requirements of 40 CFR 270, or
- Hazardous waste recycling units that are located on hazardous waste management facilities otherwise subject to the permitting requirements of 40 CFR 270.

Therefore the FCP ~~FEMP~~ is not subject to the requirements of this subpart.

F-2b(11) Subpart CC Inspection

Subpart CC air emission standards require facilities to control emissions of volatile organic compounds (VOC) from containers if the hazardous waste in these containers contains an average VOC concentration of greater than or equal to 500 parts per million by weight. Subpart CC emissions standards do not apply to:

- A waste management unit that holds hazardous waste placed in the unit before December 6, 1996, and in which no hazardous waste is added to the unit on or after December 6, 1996.

- A waste management unit that is used solely for on-site storage of hazardous waste that is placed in the unit as a result of implementing remedial activities required under CERCLA authorities.

- A waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act.

- A container that has a design capacity less than or equal to 0.1 m^3.

If a FCP ~~FEMP~~ hazardous waste container does not meet one of the Subpart CC exemptions, it will be managed in accordance with the applicable Subpart CC container level standard. If a DOT container is used to meet these standards, no additional testing, inspection, or monitoring requirements apply (59 FR 62899; December 6, 1994).

F-2c Remedial Action

Repairs or other actions taken to remediate problems identified during an inspection are recorded on the inspection forms. Deficiencies are reported to the supervisor and arrangements for prompt, appropriate remediation of the problem are made.

Repairs are made in a timely manner so that a situation does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately. Items identified as missing or present in insufficient quantities such as emergency equipment are obtained promptly and placed in the proper location. The remedial response to deficiencies is to restore an item to proper working order, or to restock an item to ensure its availability in an emergency.

Leaking, damaged, or deteriorating containers identified during an inspection are managed in accordance with OAC 3745-55-71. Once mitigated and if repair is not feasible, the containers are overpacked in place where practicable. ~~For those containers that are not overpacked in place, three areas within the Plant 1 Pad Complex are currently used as overpack stations. These three areas are: TS-5, TS-6 and Building 30A.~~ Drums are overpacked by placing the leaking container into a larger-size container.

Repackaging is accomplished by transferring the contents of the damaged drum into a different container. Repackaging of hazardous waste containers is conducted in ~~Building 71,~~ Building 79. ~~and Building 30A.~~ This area is equipped with spill pallets or other containment, spill cleanup materials, and scales. All overpacking and repackaging activities are controlled by procedure.

~~Each of the areas used for overpacking or repackaging are equipped with spill pallets or other containment, spill cleanup materials, and scales. All overpacking and repackaging activities are controlled by procedure.~~

F-2d Inspection Forms

Attachment F-2 (RCRA Container Storage Area Inspection Forms) provides examples of the current inspection forms. These examples are subject to change. The inspection forms have been designed to readily identify those areas routinely checked for acceptability and highlight conditions which potentially could cause problems.

Inspection forms include at a minimum, the following information:

- Date of inspection
- Time of inspection
- Name of the inspector
- Notation of the observation(s) made
- Corrective action(s) taken
- Date corrected.

F-3 PREPAREDNESS AND PREVENTION REQUIREMENTS

The FCP ~~FEMP~~ does not wish to request a waiver of the preparedness and prevention requirements under OAC 3745-54-30 (40 CFR 264 Subpart C). Requirements of this Subpart are also discussed in further detail in Section D, Process Information, and Section G, Contingency Plan, of this application.

F-3a Equipment Requirements

A detailed discussion of the FCP ~~FEMP~~ emergency equipment and communications systems and the capabilities of each item is provided in Section G, Contingency Plan.

F-3a(1) Internal Communications

Communications within a Unit

Voice communication is used within any single RCRA storage unit. Voice communication is adequate to provide immediate emergency instruction to personnel within the storage areas ~~of the building~~ because of the sizes and open configurations of the storage units.

Communications to the Communications Center

Communication devices are available for personnel accessing RCRA storage units for emergency notification purposes. The communication devices are used to contact:

1) the Communications Center,
2) other personnel who, in turn, can contact the Communications Center, or
3) the area supervisor to report any emergency.

The Communications Center summons additional on-site and off-site assistance as needed.

Signals from manual fire alarm boxes, automatic fire monitoring, and/or suppression systems located within the operating units throughout the facility are automatically transmitted to the Communications Center.

On-site Emergency Warning System

The FCP ~~FEMP~~ has an extensive on-site emergency alarm and communications system for notifying employees and on-site emergency response personnel. This system provides facility-wide, building, and off-site warning systems.

The facility alarm system is controlled in the Communications Center, which operates 24 hours per day. The facility alarm system, which includes electronic alarm bells or air horn signals, can be activated from the Communications Center. A voice message, following the sounding of a warning signal, is broadcast throughout the facility to transmit appropriate instructions and other important information to FCP ~~FEMP~~ personnel.

F-3a(2) External Communications

Communications Center

External communications are managed by the Communications Center which is staffed 24 hours per day. The Communications Center has the ability to summon additional emergency assistance from local police departments, fire departments, or state and local emergency response teams as needed.

The Communications Center has the following equipment for contacting off-site assistance organizations:

- Conventional and special phone systems capable of summoning off-site emergency assistance including wired phones connected to the local telephone company.
- Two-way radios capable of internal communications and direct contact with the Hamilton and Butler County Dispatch Centers, the Butler County Emergency Management Agency (BCEMA) and the Hamilton County Emergency Management Agency (EMA).

Off-site Emergency Warning System

The off-site emergency warning system warns citizens within a two-mile radius of the site, when emergencies may affect people outside facility boundaries. Activating the sirens alerts residents to seek shelter immediately and tune to a radio or TV station for an Emergency Broadcast System message for information.

F-3a(3) Emergency Equipment

~~Each of~~ The FCP ~~FEMP~~ hazardous waste container storage areas are ~~is~~ equipped with supplies, materials, and equipment for responding to emergencies (e.g. portable fire extinguishers and materials for spill response and cleanup). This equipment is inspected at least weekly. Additional fire protection, spill control, and decontamination equipment is maintained on-site. ~~by the site Emergency Response Team.~~ See Section F-2 for further inspection information.

The emergency equipment at the FCP ~~FEMP~~ is described in detail in Section G, Contingency Plan.

~~**Portable Fire Extinguishers**~~

~~Portable fire extinguishers are located at the hazardous waste storage units.~~

Fire Control Equipment

~~CP Storage Warehouse (Building 56),~~ Plant 6 Warehouse (Building 79) ~~and Plant 8 Warehouse (Building 80) are~~ is protected with a sprinkler system, in addition to portable fire extinguishers. ~~The Pilot Plant Warehouse (Building 68), which is used to store hazardous waste samples, is equipped with fire extinguishers. Fire hydrants are located outside of each storage unit.~~ Each of the hazardous waste storage lockers ~~on Plant 1 Pad~~ has a dry pipe sprinkler system plumbed to an outside Fire Department connection. The system can be activated by connection to a fire truck. ~~one of the FEMP's fire trucks.~~ Fire extinguishers are also placed in locations that are accessible to the storage lockers. ~~The FEMP also maintains on-site a fully equipped Emergency Response Team, described in Section G, Contingency Plan.~~

Spill Control Equipment

Protective clothing, boots, gloves, respirators, and face shields are stored in a central location and are readily accessible in the event of a spill. Spill cleanup equipment and material such as shoe covers, booties, gloves, absorbent pads/"PIGS", radiological drum liner bags, caution/banner tape, and duct tape~~, and shovels~~ are stored in each storage location~~ unit~~.

Decontamination Equipment

A full complement of decontamination equipment is maintained on-site~~ by the site Emergency Response Team~~, in addition to the spill equipment. This equipment is described in detail in Section G, Contingency Plan. ~~The Emergency Response Team can mobilize, as needed, with the Spill Response Vehicle - Haz-Mat 27. The Spill Response Vehicle can pull a trailer which carries supplies used in decontamination of personnel and equipment. In addition, the trailer has equipment to contain the rinse water used in decontamination.~~

Alarm Systems

The facility alarm and communications horn system is tested in accordance with NFPA-72 National Fire Alarm Code schedules. The Emergency Message System is tested daily. Failure of any component of the system results in immediate remedial action or implementation of a back-up system.

F-3a(4) Water for Fire Control

Water for fire protection is available from the following source~~s~~:

~~**Primary**~~

~~Elevated Fire Water Tank~~	~~350,000 gallons~~
Ground Level/Domestic Fire Water Tank	400,000 gallons

~~**Backup**~~

~~Domestic Raw Water Tank~~	~~300,000 gallons~~
~~Elevated Potable Water Tank~~	~~200,000 gallons~~

The system ~~two systems~~ for fire control is ~~are~~ described below.

High Pressure Distribution System

The High Pressure Distribution System provides water to the high pressure hydrants, located outside each storage unit, and to building sprinkler systems. ~~The locations of the high pressure hydrants are described in Section G, Contingency Plan.~~ A static pressure of 114 psi (gauge) is maintained in the system by a jockey pump ~~the elevated water tower.~~ The fire pump system is activated when the pressure in the system drops. The fire pump system consists of one electric and one-diesel powered pump, rated at 1,250 gallons per minute (gpm) at 125 psig. The electric pump and the diesel pump start automatically as the result of low water pressure. The fire pumps obtain water from the ground level tank. The fire pumps take suction at the bottom of the tank and have access to all 400,000 gallons, while the domestic water pumps take suction approximately eight feet from the bottom of the tank. This limits the domestic water pumps to the top 300,000 gallons and reserves the bottom 100,000 gallons strictly for the fire pumps only. ~~The fire pump system initially obtains water from the ground level tank, cutting off flow from the elevated water tank.~~ This system is capable of providing sufficient water at sufficient volume and pressure for sprinkler systems.

~~**Low Pressure Distribution System**~~

~~The low pressure distribution system provides water to low pressure hydrants. This water is provided by the potable water system. The water in this system can be drawn upon by responding fire departments for additional fire fighting needs. The location of the low pressure hydrants is described in Section G, Contingency Plan.~~

~~**Emergency Response Equipment**~~

~~The facility maintains an on-site Emergency Response Team capable of responding to emergency conditions. The Emergency Response Team can respond with a fully equipped fire engine, an ambulance, a Haz Mat unit and a rescue truck as needed. The full capabilities of the Emergency Response Team are described in Section G, Contingency Plan.~~

F-3b Aisle Space Requirements

An aisle space of a minimum of 22 inches ~~in covered storage areas, and 24 inches in outdoor storage areas~~ is maintained between pallets of drums or between containers not stored on pallets (e.g., boxes). A four-foot main aisle is also provided in the Plant 6 Warehouse ~~each area~~ to allow the unobstructed movement of personnel, fire protection equipment, and spill control equipment.

The 22 ~~and 24~~ inch minimum inspection aisle space is adequate because:

- the aisles are adequate for personnel to inspect drums for leaks and deterioration and
- For the Plant 6 Warehouse, a main equipment aisle is provided ~~in each area~~ to allow for unobstructed movement of emergency equipment.

F-4 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT

F-4a Prevent Hazards in Loading/Unloading Operations

After a hazardous waste container has been filled, labeled and closed, it is transferred to a storage area. Small containers can be moved by equipment such as, but not limited to, handcarts or handtrucks. Large containers may be moved by equipment such as, but not limited to, forklifts, trucks or trailers.

~~The containers can be unloaded and moved into storage using ramps and forklifts. Containers can be unloaded directly from tractor trailers using an adjustable dock and/or unloaded from small dolly trailers via fork lift equipment.~~

Containers of non-radiologically contaminated hazardous waste are loaded for off-site shipment from the two hazardous waste storage lockers located north of the West Parking Lot. Building 77 has a loading dock and is used to stage containers of mixed waste prior to off-site transport. Containers of mixed waste may be staged in this building for up to two weeks in order to prepare the containers for off-site shipment.

~~Plant 1 Pad and the Receiving and Incoming Materials Inspection Area (RIMIA) Building (Building 82) have loading docks for receiving and shipping hazardous waste. Hazardous waste may be loaded onto or unloaded from transportation vehicles, using the loading docks. A mobile dock is also available for use in loading or unloading in other areas of the facility without a dock. Hazardous waste to be shipped off-site may be staged and loaded from any of the hazardous waste storage units. The Plant 1 Pad and the RIMIA Building (Building 82) loading docks serve as the main areas for any receipt of material from off-site.~~

~~Traffic information and sample traffic patterns for the FEMP are discussed in Section B, Facility Description. Facility personnel have been instructed to notify the area supervisor and/or Communications Center, in the event of an accidental spill of hazardous waste in transport or during loading/unloading operations. Section G, Contingency Plan, provides specific emergency notification and response procedures.~~

F-4b Prevention of Run-Off to Other Areas

Hazardous Wastes With Free Liquids

Hazardous wastes with free liquids are stored in diked areas capable of holding a minimum of 10 percent of the maximum storage capacity of the unit. Storage areas for hazardous waste containing free liquids are enclosed within structures or buildings preventing accumulation of precipitation within the diked areas.

Hazardous Wastes Without Free Liquids

Hazardous wastes without free liquids are stored (as described in Section D) inside the hazardous waste storage lockers and the Plant 6 Warehouse. ~~structures or buildings or on the Plant 1 Pad.~~ Indoor storage areas are not subject to precipitation and therefore do not produce precipitation runoff.

~~Precipitation run-off which contacts containers not located under cover on Plant 1 Pad is directed into the stormwater collection system. Hazardous waste releases will be captured by the storm sewer system. Stormwater flows into the Stormwater Retention Basin (SWRB).~~

~~Releases into SWRB can be treated through the Advanced Wastewater Treatment System or captured and managed accordingly.~~

Prevention of Flooding

Flooding created by run-on from other areas is prevented from entering the hazardous waste storage lockers and the Plant 6 Warehouse ~~structures, buildings and concrete pads~~ by ensuring that there is adequate drainage and/or using ~~concrete slabs and~~ topography which slopes ~~slope~~ away from these areas.

The hazardous waste storage units are in areas outside of the 100-year flood plains for the Great Miami River and Paddy's Run.

F-4c Prevent Contamination of Water Supplies

Contamination of water supplies by hazardous wastes or hazardous waste constituents is prevented by storing the hazardous waste in enclosed structures.~~, in buildings, or on concrete pads~~ and by controlling run-off as described in Section F-4b. Container management practices as described in Section D, Process Information, provide an integral aspect of water supply contamination prevention.

F-4d Equipment and Power Failure

Electrical power is used primarily for lighting in the Plant 6 Warehouse. ~~storage units except in the hazardous waste storage lockers where~~ Flashlights and natural lighting are used in the hazardous waste storage lockers to see inside the unit. Battery powered lighting can be used if needed during a power failure. Powered equipment involved in handling materials includes fork lift trucks, barrel stackers and gantry cranes. Since this equipment is internally powered by electric battery or internal combustion engine, it is not subject to a site-wide power failure. A replacement is available, in the event of a mechanical failure of the fork lift and/or barrel stacker, as the facility maintains a large operating supply.

Normal operations at the RCRA storage units are suspended if there is a site-wide power outage. Portable generators are available in case of emergencies. Generators are not permitted within areas where ignitable hazardous wastes are stored, unless proper precautions are taken.

Precautions may include the use of an explosion-proof generator, or placement of the generator at a safe distance or location from the ignitable hazardous wastes.

F-4e Personnel Protection Equipment

Personnel exposure to hazardous waste is minimized through the use of protective equipment, as well as by safe handling practices. The protective equipment appropriate for employees working in the storage areas ~~buildings~~ is specified by the area supervisor, and health and safety personnel at the FCP ~~FEMP~~. Protective equipment can include coveralls, boots, gloves, face shields, and respirators.

Personnel involved in management of hazardous wastes receive training in the use of protective equipment and the proper handling of hazardous wastes. Annual fit-testing of respirators and RCRA refresher training are also provided, as described in Section H, Personnel Training.

F-4f Prevent Releases to Atmosphere

The FCP ~~FEMP~~ is required to prevent release to the atmosphere from process vents and equipment leaks under Subpart AA and BB regulations (40 CFR 264). Currently, the FCP ~~FEMP~~ has no equipment that is subject to these rules.

Hazardous wastes generated at the FCP ~~FEMP~~ which are subject to Subpart CC standards are placed into DOT-approved containers which have a design capacity of less than or equal to 0.46 m^3. These containers are equipped with a cover and remain closed except when adding or removing waste, sampling or conducting a visual inspection.

F-5 PREVENTION OF REACTION OF IGNITABLE, REACTIVE AND INCOMPATIBLE WASTES

F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes

Containers of hazardous waste are inspected for corrosion and other defects to minimize the possibility of ignition or reaction of ignitable or reactive hazardous wastes. Stored containers remain closed except when a sample must be obtained, during visual inspections as a part of waste characterization, or during addition or removal of hazardous waste. Some containers are

equipped with filter vent plugs (maximum size of two inches) to prevent the build-up of pressure within the container.

Hazardous wastes are acceptable if placed in compatible drums meeting DOT performance standards. The FCP ~~FEMP~~ has some containers that were in use prior to the promulgation of the DOT performance-oriented standards. These containers are inspected on the same schedule as all other containers to ensure their integrity.

The hazardous waste container storage areas are inspected at the frequency identified in the Facility Inspection Schedule (example provided as Attachment F-1). Any leaks or spills are cleaned up immediately, reducing the possibility of adverse reactions. Drums may be overpacked or repacked to correct a leak or to improve the integrity of the container to preclude future leaks.

Prevention of Ignition

Containers that hold ignitable hazardous waste are stored in areas protected from accidental ignition sources. Smoking is not permitted in these areas. "NO SMOKING" signs are conspicuously posted.

Waste characterization as described in Section C, Waste Characteristics, is performed to provide sufficient information to select the safest hazardous waste storage containers, appropriate hazardous waste storage areas and to accurately characterize the hazardous physical and chemical properties of each waste stream.

The following precautionary measures are enforced to prevent fires and/or the release of hazardous waste constituents:

- Hazardous waste containers are identified by Reactivity Group Codes (RGCs) to ensure that ignitable and reactive hazardous wastes are appropriately stored. ~~The only exception to this requirement is containers of samples being staged in the Pilot Plant Warehouse (Building 68) prior to segregation under the Sample Disposition Project. RGCs will be applied to containers of hazardous waste samples after they have been segregated and/or consolidated under this project.~~

- Approved work permits are required before welding is performed.
- Surveys for combustible gases and vapors are performed by health and safety personnel before performing certain work involving ignition sources such as open flames, and heating elements.
- "NO SMOKING" ~~and "NO OPEN FLAME"~~ signs are conspicuously placed at the entrances to the hazardous waste storage areas.
- Non-sparking tools are used to open and close containers which contain ignitable hazardous waste.
- Fire protection systems and equipment (e.g. fire extinguishers, sprinkler systems) ~~Hand-held fire extinguishers~~ are available to extinguish small fires. ~~Sprinkler systems are installed in some areas to control the larger fires that cannot be extinguished by hand-held fire extinguishers.~~

Prevention of Reaction

Hazardous wastes are marked, separated and segregated according to the Reactivity Group Code (RGC) system maintained at the facility. Figure F-2 is the current RGC Hazardous Waste Compatibility Chart used to determine the segregation of incompatible hazardous waste. PCB compatibility is also provided in Figure F-2.

~~The only exception to this requirement is containers of samples being staged in the Pilot Plant Warehouse (Building 68) prior to segregation under the Sample Disposition Project. RGCs will be applied to containers of hazardous waste samples after they have been segregated and/or consolidated under this project. These are primarily environmental media samples and samples from various mixed waste treatment projects. The Pilot Plant Warehouse is being used to temporarily store these containers since many of the samples are stored in glass jars and require storage in a heated building. The samples have been overpacked into larger containers filled with packing material and/or absorbent.~~

Waste characterization as described in Section C, Waste Characteristics, is performed to provide sufficient information to select the safest hazardous waste storage containers, appropriate hazardous waste storage areas and to accurately characterize the hazardous physical and chemical properties of each waste stream.

F-5b General Precautions for Handling Ignitable or Reactive Wastes and Mixing Incompatible Wastes

Hazardous waste containers stored at the FCP ~~FEMP~~ remain closed during storage and may be opened when a sample must be obtained, for visual inspection as part of the waste characterization, or during addition or removal of hazardous waste. Some containers are equipped with filter vent plugs (maximum size of two inches) to prevent the build-up of pressure in the container. These vent plugs are primarily installed to provide ventilation to drums of wastes containing free reactive uranium metal that has the potential to generate hydrogen gas. Vent plugs are also installed in drums containing unpunctured aerosol cans, bulging or pressurized containers and containers of biological gas-generating waste. Vent plugs are not used when drums contain mixed waste with RCRA organics unless it is one of the waste types identified above. The filter vent plug contains a charcoal filter. The filter vent plug is inserted into the bung opening of the drum lid. The plugs are also installed on outer drums if the vented drums are overpacked.

Accidental ignition or mixing of ignitable or incompatible hazardous waste types is unlikely. As discussed in the previous section, the FCP ~~FEMP~~ uses a Reactivity Group Code (RGC) marking system to segregate incompatible hazardous wastes. Incompatible hazardous wastes are separated by diked areas or other devices (e.g. stored on separate spill pallets) and/or stored in separate units. ~~buildings. As noted above, the only exception to this requirement is containers of samples being staged in the Pilot Plant Warehouse (Building 68) prior to segregation under the Sample Disposition Project. RGCs will be applied to containers of hazardous waste samples after they have been segregated and/or consolidated under this project.~~ At the present time the FCP ~~FEMP~~ is not seeking a permit for any treatment processes which may require mixing of incompatible hazardous wastes.

Some examples of mixing of hazardous wastes at the FCP ~~FEMP~~ are listed below:

- Consolidation of the same or similar hazardous wastes into larger containers; and
- Consolidation of lab samples into larger containers.

These practices are only allowed for hazardous wastes which are compatible.

F-5c Management of Ignitable or Reactive Wastes in Containers

Ignitable and reactive hazardous wastes are stored at least 50 feet from the FCP ~~FEMP~~ property line. Figure F-1 (Facility 50 Foot Boundary Line) shows the location of the FCP ~~FEMP~~ hazardous waste storage areas relative to the property line.

The storage practices followed by the FCP ~~FEMP~~ include the use of buildings and structures. ~~and pads with concrete bases.~~ Storage areas for hazardous wastes with free liquids are designed with a secondary containment system capable of holding at least 10 percent of the maximum waste volume stored in the area. FCP ~~FEMP~~ container management practices are discussed further in Section D, Process Information.

Inspections are performed at least at the frequency identified in the Inspection Schedule (Attachment F-1), to ensure the proper management of hazardous wastes. Inspection procedures are discussed in Section F-2.

A Reactivity Group Coding system (Figure F-2) has been developed to ensure the compatibility of hazardous wastes stored in the same ~~curbed~~ area. The system incorporates "letter code signs" in storage areas. Incompatible wastes are separated by means of a dike, berm, or other device (e.g. stored on separate spill pallets). ~~As noted above, the only exception to this requirement is containers of samples being staged in the Pilot Plant Warehouse (Building 68) prior to segregation under the Sample Disposition Project. RGCs will be applied to containers of hazardous waste samples after they have been segregated and/or consolidated under this project.~~

F-5d Management of Incompatible Wastes in Containers

Facility personnel responsible for the management, transfer and storage of hazardous waste at the FCP ~~FEMP~~ are trained in proper hazardous waste handling procedures. Hazardous waste containers are approved for storage after confirmation that the containers are closed, properly labeled and are in good condition. Previously used containers are cleaned before reuse. Combining of waste from different sources into the same container is not allowed without review.

F-5e Management of Ignitable or Reactive Wastes in Tank Systems

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste tank system.

F-5f Management of Incompatible Wastes in Tank Systems

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste tank system.

F-5g Management of Ignitable or Reactive Wastes Placed in Waste Piles

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste pile.

F-5h Management of Incompatible Wastes Placed in Waste Piles

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste pile.

F-5i Management of Ignitable or Reactive Wastes Placed in Surface Impoundments

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste surface impoundment.

F-5j Management of Incompatible Wastes Placed in Surface Impoundments

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste surface impoundment.

F-5k Management of Ignitable or Reactive Wastes Placed in Landfills

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste landfill.

F-5l Management of Incompatible Wastes Placed in Landfills

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste landfill.

F-5m Management of Ignitable or Reactive Wastes Placed in Land Treatment Units

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste land treatment unit.

F-5n Management of Incompatible Wastes Placed in Land Treatment Units

The FCP ~~FEMP~~ is not seeking a RCRA permit to operate a hazardous waste land treatment unit.

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

INSPECTION SCHEDULE
for
FIRE PROTECTION EQUIPMENT
LOCATED WITHIN A CONTAINER STORAGE UNIT

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Portable Fire Extinguisher	Weekly	Missing, obvious physical damage
	Monthly	Operating condition (e.g., gauge pressure, hose condition)
	Annual (multi-years)	Weight and condition of agent (e.g., powder), hydrostatic testing
Sprinklers (if installed)	Weekly	Obvious damage, operating pressure
	Annual	System operation test

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

INSPECTION SCHEDULE
for
SPILL RESPONSE AND CLEANUP EQUIPMENT/SAFETY EQUIPMENT
LOCATED WITHIN A CONTAINER STORAGE UNIT

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Spill Response Materials: • Absorbent Pads/PIGS • Radiological Drum Liner Bags • Protective Gloves • Shoe Covers, Booties • Caution/Banner Tape • Duct Tape • Shovel (where provided)	Weekly	Availability, condition
Emergency Eye Wash and Safety Shower	Quarterly	Condition, green light, water change

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

INSPECTION SCHEDULE
for
EMERGENCY PERSONAL PROTECTIVE EQUIPMENT
LOCATED WITHIN A CENTRAL AREA

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Respirators and Cartridges	Annually by IH w/more frequent random checks, user inspects prior to use Varies according to location	Condition Quantity
Disposable Coveralls	Inspect prior to use Varies (depending on location)	Condition Quantity

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

INSPECTION SCHEDULE
for
OPERATION EQUIPMENT
LOCATED IN PLANT 6 WAREHOUSE (BUILDING 79) ~~WITHIN A CONTAINER STORAGE UNIT~~

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Electrical Power	Weekly	Power of lights
Lighting	Weekly	Operating condition
Warning Signs (Interior/Exterior)	Weekly	Present and legible
Two-Way Radio	Daily (when in use), minimum once weekly	Operating condition
Building Audible Warning Alarms	Annual	Operations test
Fire Alarm Manual Pull-Stations	Every 6 months	Operations test

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

SPECIFIC INSPECTION SCHEDULE
for
RCRA ~~LIQUID~~ CONTAINER STORAGE UNIT

EQUIPMENT FREQUENCY	FREQUENCY	TYPE OF PROBLEMS
Containment Diking (Curbs)	Weekly	Damage, cracks, breaks and operating condition
Ramps	Weekly	Damage and operating condition
Containment Floor Condition	Weekly	Free liquid, damage, cracks (sealant), breaks and operating condition
~~Sumps and Trenches within Containment~~	~~Weekly~~	~~Free liquids, damage, cracks, breaks and operating condition~~
Aisle Spacing	Weekly	Adequate aisle spacing, proper container placement and stacking
Housekeeping	Weekly	Clutter, general condition
Container Condition	Weekly	Container labels, dates, closure, compatibility, damage or deterioration (e.g. hole, dent, bulge, corrosion/paint/rust)

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

SPECIFIC INSPECTION SCHEDULE
for
RCRA SOLID CONTAINER STORAGE UNIT

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Floor Condition	Weekly	Cracks, operating condition, liquids (water) from run-on
Aisle Spacing	Weekly	Adequate aisle spacing, proper container placement and stacking
Housekeeping	Weekly	Clutter, evidence of spills
Container Condition	Weekly	Container labels, dates, closure, compatibility, damage or deterioration (e.g., hole, dent, bulge, corrosion/paint/rust)

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

INSPECTION SCHEDULE
for
FACILITY FIRE PROTECTION EQUIPMENT

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
~~Fire Engine/Pumper~~	~~Daily (in service unit only)~~	~~Inventory of equipment, operating condition~~
	~~Annual~~	~~Pump capacity test~~
~~Ambulance~~	~~Daily (in service unit only)~~	~~Inventory of equipment, operating condition~~
~~Haz-Mat Response Truck~~	~~Daily~~	~~Inventory of equipment, operating condition~~
~~Utility/Supply Vehicle~~	~~Daily (in service unit only)~~	~~Inventory of equipment, operating condition~~
Fire Pumps	Weekly	Start-up and operation test of pump and system, diesel fuel level
	Annual	Pump capacity test
	Every 5 Years	Underground test of fire main systems, flow of water
~~Elevated High Pressure Hydrant Fire Water Tank~~	~~Weekly~~	~~Water level, operating condition~~
Ground Level Fire Pump Water Tank	Weekly	Water level, operating condition
Fire Hydrants	Annual	Operating condition, annual flushing, pressure
Fire Alarm System	Semi-Annual	Operations test

Section F - PROCEDURES TO PREVENT HAZARDS

ATTACHMENT F-1

OTHER INSPECTIONS

EQUIPMENT	FREQUENCY	TYPE OF PROBLEMS
Load/Unload areas and other areas subject to spills (per OAC 3745-54-15(B)(4))	Daily when in use	Evidence of spills
~~Leakage Inspections for Containers of Uncharacterized and Hazardous Waste Stored on Uncovered Portions of Plant 1 Pad (does not include thorium mixed waste containers)~~	~~Daily~~	~~Leakage~~
~~Leakage Inspections for Containers of Thorium Mixed Waste Stored in Plant 1 Pad, E Area~~	~~Weekly~~	~~Leakage~~

HWMU 37, PLANT 6 WAREHOUSE (BLDG. 79)

Active
Container Storage

Inspector's Signature:	Badge #:	Date:	Time:
HWMU Facility Owner's Signature:	Badge #:	Date:	Time:

Item No.	Item Description	Acceptable	Unacceptable	Observations/Corrective Actions To Be Completed
1	**Signs:** -Danger-Authorized Personnel Only -No Smoking or Open Flame -Emergency & Prior To Entry Contact -PCB Warning Label - posted at access points to designated storage facility			
2	**Building Condition**			
3	**Condition of Secondary Containment**			
4	**Safety/Emergency Equipment**			
5	**Spill Response Equipment**			
6	**Container Management:** - Reactivity Group Codes (RGCs) - Aisle Spacing - Drum Stacking Height			
7	**Conditions of Drums (Evidence of Leaks/Spills)**			

Comments: _____

Inspection Program Team Leader/Designee:	Date:

000140

HAZARDOUS WASTE STORAGE LOCKER
(Clean Side)

Locker Location			
CLEAN SIDE - LOCKER NUMBERS 14 & 36			
Inspector's Signature:	Badge #:	Date:	Time:
Facility Owner's Signature:	Badge #:	Date:	Time:

Item No.	Item Description	Acceptable	Unacceptable	NA	Observations/Corrective Actions To Be Completed
1	**Signs:** -Danger-Authorized Personnel Only -No Smoking or Open Flame -Emergency & Prior to Entry Contact -Hazardous Waste Label / PCB Label				
2	**Locker Condition**				
3	**Condition of Secondary Containment**				
4	**Condition of Containers (Evidence of Leaks/Spills)**				
5	**Spill Response Equipment**				
6	**Container Management:** - **Reactivity Group Codes (RGCs)** - **Aisle Spacing** - **Hazardous Waste Labels**				

Comments: _____

Inspection Program Team Leader/Designee:	Date:

5284

HAZARDOUS WASTE STORAGE LOCKER
(Controlled Side)

Locker Location			
CONTROLLED SIDE - LOCKER NUMBERS 2, 4, 9, 10, 11, 15, & 25			
Inspector's Signature:	Badge #:	Date:	Time:
Facility Owner's Signature:	Badge #:	Date:	Time:

Item No.	Item Description	Acceptable	Unacceptable	NA	Observations/Corrective Actions To Be Completed
1	**Signs:** -Danger-Authorized Personnel Only -No Smoking or Open Flame -Emergency & Prior to Entry Contact -Hazardous Waste Label / PCB Label				
2	**Locker Condition**				
3	**Condition of Secondary Containment**				
4	**Condition of Containers (Evidence of Leaks/Spills)**				
5	**Spill Response Equipment**				
6	**Container Management:** - **Reactivity Group Codes (RGCs)** - **Aisle Spacing** - **Hazardous Waste Labels**				

Comments: _____

Inspection Program Team Leader/Designee:	Date:

SECTION H - PERSONNEL TRAINING

TABLE OF CONTENTS

SECTION H - PERSONNEL TRAINING

Part B Permit Application
Fernald Closure ~~Environmental Management~~ Project
Fernald, Ohio

INTRODUCTION

This Section describes the personnel training program for the Fernald Closure ~~Environmental Management~~ Project (FCP) ~~(FEMP)~~ in accordance with the requirements of the Resource Conservation and Recovery Act (RCRA) and Ohio Administrative Code (OAC) 3745-50-44 (A)(12) and OAC 3745-54-16, Title 40 Code of Federal Regulation (CFR) 270.14(b)(12) and 264.16.

Training is essential to ensure the safe and efficient operation of the facility and the rapid, effective response to incidents involving hazardous wastes. Employees are trained in accordance with FCP ~~FEMP~~ policy to emphasize safety, and to protect human health and the environment.

The training requirements apply to all appropriate employees of the U.S. Department of Energy (DOE) and their contractors who regularly work at the facility and may come in contact with and/or manage hazardous waste. Section H describes the initial and continuing training provided to personnel, which allows them to operate the facility safely and in compliance with hazardous waste regulations.

H-1 OUTLINE OF THE TRAINING PROGRAM

The training program conducted by the FCP ~~FEMP~~ prepares hazardous waste personnel to maintain and operate the facility in a safe, efficient, and environmentally sound manner. The program emphasizes compliance with Ohio Environmental Protection Agency (OEPA), US EPA, Department of Transportation (DOT), and Occupational Safety and Health Administration (OSHA) regulations, as well as Department of Energy (DOE) Orders and regulations in providing personnel with a consistent level of training needed to respond to incidents in a prompt and effective manner.

~~The RCRA training course is designed to meet the requirements of OAC 3745-50-44(A)(12) and OAC 3745-54-16 and 40 CFR 270.14(b)(12) and 264.16.~~

The Training Program materials are designed and developed with qualified subject matter experts to ensure compliance with:

- Ohio EPA hazardous waste rules in OAC 3745-50-44(A)(12) and OAC 3745-54-16 and 40 CFR 270.14(b)(12) and 264.16,
- OSHA regulations in 29 CFR 1910.120, which prescribe the training requirements for RCRA permitted treatment, storage and disposal facilities, and
- DOT requirements, applicable by reference in Ohio EPA and US EPA Rules and Regulations, for packaging, labeling and transportation of hazardous wastes.

General RCRA training requirements for all personnel subject to the OSHA Standard 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER) are integrated into required site access training.

Additional job-specific training, as applicable, is presented to prepare employees to execute FCP ~~FEMP~~ procedures and specific job tasks, some of which relate to RCRA compliance and hazardous waste management. The ~~This~~ training required is defined ~~outlined through Job Specific~~ in the applicable Training and Qualification Programs ~~Program Descriptions.~~ Both classroom and on-the-job training are used to prepare the individual employees for their specific job assignment.

~~The training programs are also designed to address the training requirements for RCRA permitted treatment, storage and disposal facilities prescribed in the Occupational Safety and Health Act (OSHA) regulations in 29 CFR 1910.120.~~

H-1a Job Title/Job Description

Employees ~~from the Waste Management Division are primarily~~ responsible for the handling and storage of hazardous waste(s) at the FCP ~~FEMP.~~ are identified by job ~~Job~~ titles and job descriptions. ~~for~~ FCP ~~FEMP~~ Training Qualification Programs employees identify general areas of responsibility and expertise necessary for specific job categories. However, these job descriptions do not necessarily identify whether an employee will be directly involved with handling or oversight responsibility for RCRA waste materials. This requirement will be identified through the individual employee's training profile.

All FCP ~~FEMP~~ employees are required to have a training profile upon initial assignment or reassignment to or within the FCP ~~FEMP~~. This profile is part of the Fluor Fernald Training System. This database is used to track, record, and update employee training records.

The intent of the profile is to identify whether an employee is required to have additional or job specific training related to their respective job assignments. For example, not all employees assigned to the Waste Management Division will be required to handle or oversee operations involving RCRA waste materials. For this reason, the profile becomes an effective tool for identifying and focusing on the specific training needs of the individual and the work center.

The employee's profile is a two-part process. Part I of the process consists of an interview. The employee's supervisor is asked questions by the interviewer relevant to his/her job assignment at the FCP ~~FEMP~~. Based upon the interview, the job classification and corresponding training requirements are identified. This step eliminates training redundancy and also unnecessary training requirements for the employee. At the conclusion of the interview, the respective supervisors of that employee interviewed review the results and validate authenticity and applicability to work center needs.

The Training Coordinator enters the individual's new training profile in the database. Part II of the process compares the employee's previous training and qualifications to the training and qualification requirements for the new position. If personnel require additional training, they must successfully complete the training before they are assigned to work in an unsupervised status.

The Fluor Fernald Training System database allows for a systematic approach for entering FCP ~~FEMP~~ employees into the training process. The profile and the employee's initial Job Title and Job Description determine exactly where the employee will enter the training process. The profile determines what type of training requirements the employee will be required to complete in order to meet regulatory requirements.

H-1b Training Content, Frequency, and Techniques

All employees, regardless of job description, who require routine access into RCRA or Hazardous Waste regulated areas ~~for an extended period of time~~ must meet minimum site access training requirements. This training includes the General Employee Training (GET), Basic Principles of Respiratory Protection (for those classified as OSHA General Site Workers), the Site Worker Training (SWT), and Radiological Worker Training.

In addition to these requirements, the employee must participate and satisfactorily complete job specific training at the worksite. The job specific field training is conducted at the employee's worksite under the direction of those managers with oversight and handling responsibilities for hazardous waste activities. The training is designed to enhance the background that the employee has already received on RCRA hazardous waste operations and focus specifically on hazardous waste operations in his/her job.

H-1b(1) Training Content

General Employee Training applies to all FCP ~~FEMP~~ workers, contracted employees, and temporary personnel who are not visitors, including those not directly involved with hazardous waste management. GET addresses employees' rights and responsibilities for a safe and healthful work environment under applicable safety and health regulations in addition to the following topics:

- General description of facility
- Production history
- Regulatory issues
- Policy and procedures
- Site security program description
- Facility Emergency Plan
- Overview of 29 CFR 1910.120
- Safety and health program and philosophy
- Classification of hazards and hazard controls
- Waste Management
- Emergencies and RCRA contingency plan

Quality assurance program

Those employees directly involved in the management of hazardous waste, in addition to GET, are required to attend Basic Principles of Respiratory Protection, Site Worker Training and Radiological Worker Training.

These courses include instruction on the RCRA Occupational Safety and Health Administration (OSHA) regulations, and emergency procedures for handling both hazardous and mixed site-generated waste. These courses cover the following topics:

Safety and Health information (basic)

~~Engineering controls~~

Hazard Control Methodologies, including

- Engineering Controls
- Administrative Control
- Personnel Protective Clothing and Equipment

Legal/Regulatory aspects

Annual refresher training on the topics are taught in two four-hour HAZWOPER Refresher Training Courses and, where required for job specific training, as designated in the Waste Management Project TQP. ~~GET, SWT, and Radiological Worker Training is provided in the Site Worker Refresher Training and GET Refresher.~~ This program provides employees with a review of the initial training topics, lessons learned, and current information relating to operations at the FCP ~~FEMP~~.

Job specific training is provided by personnel assigned by their managers, who are qualified in hazardous waste management procedures. The training focuses on RCRA operations inherent to the employee's job assignment. The program is designed to ensure the employee's ability to effectively respond to emergency situations such as fires, spills, or explosions, ground-water contamination events, shutdown operations, and methods for communicating and responding to site wide alarm systems.

H-1b(2) Training Frequency

All FCP ~~FEMP~~ employees are required to complete the indicated initial courses upon employment, and prior to performing unsupervised waste management activities. Employees are also required to attend annual refresher training per the dates established in each individual employee's profile.

Employees do not work unsupervised in hazardous waste management positions until they have completed the required initial training. All managers of new or reassigned employees to their work centers will be responsible for ensuring that those employees are properly trained and qualified to perform duties associated with waste management activities.

H-1b(3) Training Techniques

A variety of instruction techniques are used at the FCP ~~FEMP~~ depending on the subject matter and the techniques that best suit the learning objectives. Many courses include a combination of lecture, demonstrations, visual aids (such as video tapes, slides, and view graphs, computer based training), and exercises. Most equipment operation courses include hands-on practical instruction.

Written examinations are used as a method to test the knowledge level of individuals participating in classroom training courses. The length and content of each exam varies according to the objectives. Calculation, multiple choice, true/false and fill-in-the-blank questions may be used. Performance standards (Training/Evaluation Standards) may be utilized to evaluate the individual's capability where hands-on training is used.

H-1c Training Services Manager

The Functional Area Manager for Training directs the FCP ~~FEMP~~ RCRA training program and is responsible for establishing technical training requirements in cooperation with the line managers. The Training Services Manager assigns qualified Training Developers to work with designated Subject Matter Experts to ensure compliance with ~~is required to be trained in~~ hazardous waste management procedures and 29 CFR 1910.120 Hazardous Waste Operations

and Emergency Response. Fluor Fernald Management identifies qualified Training Developers and/or Subject Matter Experts based on their demonstrated expertise and training ~~to be well-versed~~ in all applicable ~~other appropriate~~ sections of 29 CFR 1910, and ~~be knowledgeable in and of the~~ applicable regulations, orders, guidelines, and the specific training process employed at the FCP ~~FEMP~~.

H-1d Relevance of Training to Job Position

The FCP ~~FEMP~~ training program provides employees with training relevant to their positions. The performance based training process described in Section H-1 is a systematic method for determining the proper training for each waste management position. It compels managers and training staff to look critically at each position and to determine the necessary training program for each employee to fully develop their necessary expertise.

Equipment, processes or systems unique to a position will be identified by the appropriate line manager and the requirements for safe operation incorporated into the qualification standard for the position.

Several training courses are determined to be so basic to the FCP ~~FEMP~~ mission that they are considered relevant for all FCP ~~FEMP~~ employees. The basic philosophy at the FCP ~~FEMP~~ is that, as a RCRA-regulated facility, all employees must recognize the basic regulatory requirements under which the FCP ~~FEMP~~ must operate. Therefore, all FCP ~~FEMP~~ employees receive an introduction to RCRA during their initial training.

Beyond these "umbrella" courses, training is designed and implemented relevant to the specific job functions being performed. For example, employees who perform key waste management operations (such as material sampling, drum handling, area inspections, equipment operations, etc.) must be trained in the proper operation, maintenance, and inspection of the equipment before being allowed to perform that specific job function. These employees must receive classroom instruction and/or job specific training and demonstrate the ability to operate the equipment, as appropriate, before being qualified. This process is controlled and documented by the qualification process described in Section H-1. Descriptions of all required training courses are on file in the training department records section.

Supervisors who have direct responsibility for supervising waste management personnel receive waste management training relevant to their positions identified during the profile process. As is the case with all FCP ~~FEMP~~ employees, all managers receive RCRA/OSHA overview training.

H-1e Training for Emergency Response

The FCP ~~FEMP~~ training program ensures that personnel are able to respond appropriately and effectively to emergency situations. All FCP ~~FEMP~~ employees receive instruction on hazard awareness, emergency preparedness, spill control, and the FCP ~~FEMP~~ Contingency Plan/Emergency Plan as appropriately identified in each individual employee's profile described in Section H-1a. This training ensures that every employee recognizes real or potential emergencies and how to report such occurrences to the proper FCP ~~FEMP~~ officials. It also ensures that employees will not endanger themselves or others by taking actions beyond their ability.

The FCP ~~FEMP~~ emergency response organization is described in the FCP ~~FEMP~~ Contingency Plan (see Chapter G for a complete description of the Contingency Plan). Members of this team receive thorough emergency response training before they are called upon to perform in real emergencies. This training includes fire-fighting elements such as rescue, cardiopulmonary resuscitation, first aid, use of self-contained breathing apparatus and handling hazardous materials.

The members of the FCP ~~FEMP~~ emergency response team volunteer for this assignment and are profiled to establish the respective training requirements. Training records for these individuals are maintained in each individual's training file in the Records Management Department Training Records Section.

Waste handling and emergency response personnel receive training which ensures their familiarity with emergency procedures, emergency equipment, and emergency systems where applicable including:

Procedures for using, inspecting, repairing, and replacing facility emergency equipment and monitoring equipment.

Communications and alarm systems.

Response to fires and explosions.

Response to groundwater contamination incidents.

H-2 IMPLEMENTATION OF TRAINING PROGRAM

The FCP ~~FEMP~~ training program is being implemented to ensure that all waste management personnel employed at the FCP ~~FEMP~~ receive the required training described in Section H-1b which is identified by their respective individual employee profiles administered as described in Section H-1a. All recently hired employees and new-hires receive applicable site access training, before they are allowed to work in areas hazardous wastes are or have been present and/or identified contaminated areas. Job specific training must be completed ~~the indicated training~~ within six months of their date of hire or their transfer to a new position. Personnel do not work in unsupervised positions until they successfully complete the indicated training requirements. All waste management personnel attend annual refresher courses that review and update the initial training received.

Records relating to the FCP ~~FEMP~~ training program for waste management personnel are maintained by the FCP ~~FEMP~~ Records Management Department. The ~~A software program called the~~ Fluor Fernald Training System database is used by the FCP ~~FEMP~~ to record and track employee training records. These records include the individual employee Profiles for all waste management positions; a list of courses required for each position; and dates of course completion. Course descriptions are also maintained by the Records Management Department. All of the backup information regarding certification, qualification, and examination, tests and training rosters are maintained at the FCP ~~FEMP~~ Records Center. Training records of current personnel are kept by the FCP ~~FEMP~~ until closure. Records of former employees are kept by the FCP ~~FEMP~~ for at least three years from the date the employee last worked at the facility. Records include rosters, exams and test results maintained in hard copy.